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ORIGINAL ARTICLES.

REPORT OF A CASE OF A LARGE ABDOMINAL ECHINOCOCCUS CYST: WITH REMARKS.¹

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MRS. A. H., forty-nine years old, a native of Germany and a resident of this country for four years, has borne seven children, the last twelve years ago. Menstruation has always been regular. The general health was good until eight years ago, when, after having engaged in laborious work and perspiring profusely, she experienced severe pain in the right inguinal region; the abdomen became enormously enlarged and painful and the legs edematous. A surgeon who examined her at this time stated that there was a tumor, and proposed an operation, to which patient would not consent.

She was afterwards treated by a midwife, with external applications and internal remedies, which, according to patient's statement, acted on her bowels and increased the flow of urine very materially; and after a period of fourteen weeks led to her recovery. Her abdomen became somewhat reduced in size, but never to the normal. Her health was afterward tolerably good up to September 9, 1892, when, while perspiring, she exposed herself to the chill air.

I saw her September 14, when she complained of a pain in the umbilical region; she had slight chills and vomiting; her temperature varied between 99° and 100°; her pulse was about 110 per minute. On examination I found a spherical tumor originating from the pelvis and reaching about two inches above the umbilicus. It was not very tense, but fluctuating, somewhat like a unilocular cyst.

On percussion there was an absence of tympanitic sound in either iliac region, and even after turning the patient from side to side the dulness was not diminished. The tumor thus appeared to be immovable. On the right side especially I could feel a soft mass resembling omentum. On vaginal examination the neck of the uterus was found imbedded in a cystic mass which reached low down into Douglas's pouch. Traction would not bring the uterus down much. The organ, therefore, could not be outlined and did not seem to be very movable.

Bimanual as well as rectal examination threw no further light upon the question of diagnosis. Of course, the thought of the cyst being ovarian was uppermost in my mind; still, the long history and the peculiar course led me to suspend my diagnosis. All the different conditions met with in abdominal

surgery were more than once passed in review. Even the thought of an hydatid cyst entered my mind for a moment and prompted me to ask the patient whether she had ever been in close contact with dogs; but, on her answering in the negative, the thought was pushed into the background again.

I had never before seen a case of hydatid cyst, and, though the undulations on percussion of the tumor were quite distinct, I did not at that time consider myself competent to compare them with the characteristic hydatid tremor; nor was I able to judge if the phenomenon were more aptly expressed by the English word "tremor," or the German "Hydatidenschwirren" or the French "froissement hydatique." Viewed in the light of experience, however, I should think that the word "tremor" is the most expressive. As a matter of fact, some German authors also use the word "Hydatidenzittern," which corresponds with the English "tremor."

After a few days' observation I proposed an operation; but, strengthened by her former experience, the patient did not accept my proposition. She was subsequently seen by several physicians who, I am informed, also advised operation. To counterbalance our opinions a midwife, from some distance, was called in, who frankly admitted that the condition was beyond her extensive obstetric experience.

On October 21, I was called again, and found the woman much emaciated, with a rapid and feeble pulse. Her abdomen was enormously distended and her legs edematous. She could not retain much food, and dyspnea was present. On the left side, in the iliac region, I could trace the sigmoid flexure extending toward the median line, but from here it was lost in the pelvis. The dyspnea and other symptoms finally became so aggravated that she herself urged an operation. I prepared myself to deal with more than a simple ovarian cyst, and was assisted by Drs. Caldwell, Kinsey, and Thomas. The delay in operation had one good effect; the cyst was firmly adherent to the peritoneum, so that I punctured it with the knife before I was aware of it. Some purulent fluid escaped through the small opening, and I immediately enlarged the incision to about 2½ inches.

Probably the first quart of fluid was mixed with pus and a number of small hydatid cysts of from about the size of a California grape up to a large plum. The rest of the fluid was clear; it nearly filled a tobacco pail, and contained 300 daughter-cysts, filled with clear fluid, and, besides, two large echinococcus membranes. The cavity was irrigated with a solution of corrosive sublimate.

Introducing my fingers into the sac, I found it universally adherent. The adhesions seemed to be firmest in the right iliac fossa and along the spinal

¹ Read before the Northwestern Ohio Medical Association, December 15, 1892, at Lima, Ohio.

column. An attempt to enucleate part of the sac was followed by free hemorrhage, so that on account of the patient's feeble condition I desisted. The sac was, therefore, stitched to the wound and drained by means of a glass tube and iodoform-gauze strips. Four hours after the operation the patient's temperature was 102° , the pulse 120° . After that the temperature varied between 99° and 100° , except on the fourth day, when, at about noon, the patient had a slight chill, and the temperature rose to 103° . I attributed this rigor to a gastric derangement, especially as she vomited once, and a dose of calomel relieved all the symptoms, and she made rapid progress towards recovery, although with a slight elevation of temperature for ten days. After a day or two the sac occupied the right iliac region and pointed to the iliac fossa as its starting-point.

As hydatid disease is quite a rare affection in this country, it may not be out of place to dwell at some length upon the most important practical features of the subject, the more so as we find comparatively meager reports of it in American literature as far as I have had access to it.

Etiology. Echinococcus disease seems to be almost endemic in Iceland and in Victoria (Southern Australia). In Iceland we find one case to from every 61 to 82 inhabitants; in Victoria the annual mortality from echinococcus disease is 3.07 per cent. To a less degree we find it in the northern part of Germany; in Mecklenburg there is one case to every 12,879 inhabitants; in Pomerania probably the proportion is lower still. Osler collected eighty-five cases in this country up to July, 1891.

The disease is caused by the eggs of the *tenia echinococcus*, of which the dog seems to be the usual carrier; parts of the *tenia* may gain entrance to the intestinal canal with drinking-water or uncooked fruits and vegetables, as lettuce, etc., which may not have been thoroughly cleaned and to which the fecal matter of the dog may readily adhere. On questioning my patient, after the operation, she stated that she obtained her drinking-water from neighboring creeks and very often drank some from surface-holes on peat-land, to which shepherd dogs had access; besides drinking they would bathe in the water and deposit their feces in it. She stated further that a shepherd had died with an enlarged abdomen some time after she had become sick, and that quite a number of persons in her neighborhood had died with dropsical affections, which, in the light of her illness, might be suspected as having been echinococcus disease. The countries in which echinococcus disease is common raise many sheep and cattle, which, it is known, are even more prone to the affection than man.

The woman stated further that a large number of sheep about her die of a disease called "Filsch," which is probably echinococcus of the brain (Dreh-

krankheit), and that their behavior was remarkable. This statement accords with that of Richardson: "It does not require much imagination to follow the course of these embryonic tape-worms eaten by the shepherd dog. They are matured in the dog, passed as tape-worms over the pasturage of other sheep; the ova are again taken into the stomach and system of the sheep, and circles of propagation are established." After some parts of the *tenia echinococcus* have reached the intestinal canal the eggs perforate its walls and find a nidus in the liver, by way of the portal system or biliary passages, or in the spleen, or, as in my case, somewhere in the pelvis. The echinococcus cyst is there formed by the embryo, and seems to consist of two distinct layers. The inner layer, composed of granular matter and cells, consists of muscular fibers and vessels, and is called the parenchymatous layer. The outer layer is called the cuticle; it is very elastic and shows very fine parallel layers. Its growth is slow; at the end of four or five months it may only attain the size of a small walnut; at this time the brood-capsules, of the size of a pin-head, are developed from the parenchymatous layer. From these brood-capsules the heads or scolices are formed, and they seem to take their origin from the sacculated outgrowths that project into the interior of the cysts. After these heads are formed they retract within the cyst; they have four sucking disks and one hooklet. A single brood-capsule may, with increasing age, contain a dozen or more scolices, and in consequence we may find an immense quantity in a large echinococcus sac, but we also find sterile cysts. Like any foreign body these cysts set up an irritation in the surrounding tissue, and in this way become enveloped in a layer of connective tissue, from 5 to 10 millimeters thick and of extreme tenacity.

The *diagnosis* of echinococcus cysts is generally very difficult, and cannot be made from one single group of symptoms. We should closely inquire into the mode of living and the surroundings of the patient. The knowledge that a patient has been in intimate contact with dogs is not sufficient. The slow growth of the tumor would almost exclude an ovarian cyst and weigh heavily in the balance of an echinococcus. It seems to me that the undulations were more distinct than are generally found in a unilocular ovarian cyst. The tumor also did not seem quite as tense and spherical as does an ovarian cyst. Hydatid tremor, caused by the presence of a large number of daughter-cysts, when present, is, no doubt, a very valuable diagnostic factor; but it is more likely to be absent than present. Vaginal examination in females, of course, should never be omitted. In my case the cyst descended between the vagina and rectum to a lower level than the neck

of the uterus; it also yielded a sense of greater laxity than an ovarian cyst; it had greater semblance to ascites, and, in fact, there may also have been ascites, as shortly after the operation I was still able to detect a soft, doughy condition.

If the tumor occupies the upper region of the abdomen we should see whether or not it moves with the respiration. Aspiration of the fluid contents of the tumor will no doubt give the best information, and this is recommended by some surgeons as a procedure devoid of danger. From the reports of some cases it would seem, however, that this procedure is not entirely harmless, as some of the contents might escape into the abdominal cavity and give rise to a new colony of echinococci. A case operated upon and reported by Krause has the significance of an experiment, as a puncture of a cyst was followed in six months by the development of multiple echinococcus cysts.

The pressure within the cyst is often so great that the fluid is ejected through the puncture-opening in a fine stream. In a number of cases urticaria, headache, vomiting, dizziness, and abdominal pain, and even peritonitis, have followed puncture, undoubtedly as a result of the taking up of some chemical poison (ptomaines, according to Schlagdenhaufen).

The situation is much aggravated if the fluid be purulent, unless adhesions be formed. The fluid is usually clear, free from albumin, but contains some sodium chlorid, sodium succinate, grape-sugar and inosite, and has a specific gravity of from 1008 to 1010. Microscopically we may find scolices, hooklets and shreds of the chitinous capsule. At times, however, the contents of the large mother-sac may become turbid, pulpy, greasy, yellow, or may even resemble tuberculous pus, though there may be still present a large number of viable daughter-cysts filled with clear crystal fluid. In isolated cases suppuration may take place in the contents of the sac. In such an event we naturally find albumin, and we can only then make a diagnosis by the presence of hooklets or pieces of the characteristic membrane.

If we find a yellow, soft, cheesy substance interspersed with the intact daughter-cysts and other contents, we should not be too hasty in pronouncing the condition tuberculous before the matters have been examined under the microscope. Volkmann received into his clinic a case in which the diagnosis of coxitis was made. There was some indistinct fluctuation, and a tablespoonful of a yellow, pulpy mass, resembling tuberculous matter, was withdrawn by means of the aspirator. A resection was made, and the upper extremity of the femur, the joint, and the pelvis were found filled with a large number of echinococcus daughter-cysts, together with a grumous mass, having the appearance of scrofulous

pus. Microscopic examination in this case would probably have cleared up the diagnosis.

The treatment can only be prophylactic or operative. The attention of the public ought to be drawn to the danger of drinking water from shallow wells or surface holes. The practice of fondling or kissing dogs should be interdicted. Dogs should not be allowed to eat or drink from the vessels used by human beings. Special care should be taken in slaughter-houses and other places to dispose immediately and safely of refuse matter. If dogs show symptoms of tape-worm they should receive appropriate treatment. The fox has also been spoken of as being a source of infection; but I doubt if hydatid disease has ever been directly communicated by this animal.

Respecting the operative treatment, I shall limit my remarks simply to hydatids of the abdominal organs. The use of caustics as employed before the antiseptic period; of electrolysis, introduced by Althaus; of double puncture, practised by Simon and his contemporaries, with a mortality of 33 per cent., has to-day merely historic interest. Simple aspiration or tapping has also been advocated by some authorities as a curative measure. But I need simply refer to what I have said under the head of diagnosis to point out its dangers. Should we really wish to resort to tapping, the only safe method would be to make a large incision, so that we can examine the tumor and its connections, and thereby find the most suitable point for puncture.

Chaintre¹ reports a case of echinococcus of the spleen which was operated upon by Ollier. The original intention was to make a large incision into the tumor and empty it at once, but on more careful examination it was found that to do this it would be necessary to go through some tissue of the spleen, which might be followed by profuse hemorrhage. Silver sutures were therefore passed through the abdominal walls, uniting the peritoneum to the skin, and then, by a few more sutures, the tumor was fixed to the wound. To the trocar, through which a portion of the contents of the sac had already been emptied, he attached a rubber tube, passed through an antiseptic dressing, and kept closed by means of hemostatic forceps, but opened six or seven times a day to permit some of the fluid to escape through the tube. About five days later the trocar was removed and the opening dilated with laminaria tents, and then a drainage-tube of the size of six millimeters was introduced.

The principal methods that surgeons now employ are operations concluded either at one sitting or at two or more sittings, and total extirpation of the sac. Opinions are still divided as to operating at one or more sittings. Volkmann was the first to recommend

¹ Revue de Chirurgie, Oct., 1890.

the performance of the operation in two sittings, and his results, together with those of his followers (31 cases without a death), add weight to his recommendation. Koenig, who at first also operated after Volkmann's method, in two sittings, now advocates the performance of the operation in one sitting, and apparently with equal success. The statistics, however, speak in favor of the operation in two sittings, and this seems to me the best when profuse hemorrhage is to be anticipated or when the sac communicates with the bowel or the bronchial tubes. Of course, the condition of the patient may sometimes call for immediate relief, and in such a case, with proper care, we may risk an operation in one sitting. The latter method, I think, can nearly always be adopted in cysts of the pelvis; owing to the difficulties in diagnosis, the sac is generally opened before the operator is fully aware of the nature of its contents.

I shall now give the different steps of Volkmann's method. It is scarcely necessary to say that the patient and everything that comes in contact with him should be in a perfectly aseptic condition. The operation may be performed under an anesthetic, preceded by an injection of morphine, or, if vomiting is feared, a hypodermatic injection of cocaine may secure sufficient local anesthesia. The incision should be about four inches long in the direction of the long diameter of the tumor and in a situation where fluctuation is most distinct.

Hemorrhage should be fully checked before the peritoneal cavity is opened. Should the omentum be present, it can be pushed aside or divided with the scissors between two ligatures. After the tumor is exposed the wound should be packed with iodoform-gauze, over which is placed a thick layer of absorbent cotton, wood-wool, or moss. These are fixed by means of muslin bandages. The patient should be supported by pillows placed beneath the spine; the pelvis should be slightly raised, and two nurses should at the same time make slight traction on the extremities and shoulders. Over the dressing a dry, wide flannel bandage is tightly applied, and over this a gauze bandage. The dressing can be left undisturbed for eight or ten days. It is well to give the patient injections of morphine for the first few evenings, to keep him perfectly quiet.

After eight or ten days the sac can be opened. Should the adhesions prove not to be firm enough, a few sutures may be added. Koenig advises that a few sutures be placed between the wound and the sac at the first sitting, to protect the tumor from injury through respiratory movements. We may then introduce a small aspirator, to determine the thickness of the cyst-wall; if this be not very great, we can use the knife; but if the tumor has a cyanotic and congested appearance, it were better

to use the thermo-cautery, and make the opening as large as possible. The fluid and the daughter-cysts will escape in a powerful jet, which can be interrupted or retarded by pressure with a sponge or gauze, and the flow may, toward the end, be assisted by irrigation with a solution of boric or salicylic acid.

The cyst is at times very brittle, but generally, with some caution, it can be removed with the finger or forceps in part or in toto. After its removal we again wash out the sac and introduce a good-sized drainage-tube, over which we place a thick, absorbent dressing, and have it changed in accordance with the amount of discharge.

The sac shrinks considerably after the operation, and it may disappear entirely in the course of seven or eight weeks, but in exceptional cases the process may take a full year. Tumors of the convex surface of the liver may have to be opened through the pleural cavity.

James Israel, of Berlin, in 1879, reported a case in which he operated in three sittings. He first removed about one inch of the sixth rib in the axillary line and opened the pleura. The cyst pushed the diaphragm immediately into the wound. A gauze tampon and a Lister dressing were applied over it. After seven days the diaphragm and its underlying peritoneum were opened and again tamponed. Nine days later the liver-tissue, about two lines in thickness, and the cyst-wall were incised. After having evacuated the fluid and daughter-vesicles the sac was drained through the pleural wound. The discharge was profuse, periodically mixed with bile after the third day, and the patient was completely cured after nine and a half weeks.

The operation in one sitting differs very little from Volkmann's method, except that the sac is temporarily fixed to the wound by a few sutures, and a pad of iodoform is placed around the edges to prevent the entrance of fluid into the abdominal cavity. After the sac has been emptied and thoroughly irrigated it may be pulled out a little further and then stitched to the skin. It is claimed that this method has the advantage over the operation in two sittings of more speedy recovery, and that it may be possible to remove secondary cysts, as these are more readily detected after the first cyst has been emptied. This may be true to some extent. If, however, we make it a rule to examine the tumor in every direction immediately after the abdomen is opened, it ought not to be difficult to detect other cysts, and they might be emptied by puncture through the first cyst, or by incision in a more suitable situation.

In exceptional cases we have such a number of cysts distributed over the abdominal cavity that their removal may appear impossible. Very few cysts can

be completely extirpated; sometimes we may excise part of the sac. Bergmann, in one case of hydatid of the spleen, extirpated the whole organ for reasons that I fail to comprehend.

In echinococcus of the liver patients are sometimes troubled after operation with a profuse discharge of bile through the wound. A slight discharge, though it continue for some time, has no bad effect; but the cases that in this connection occasion concern are those in which all of the bile finds its way out through the wound. In patients already feeble from the effects of the tumor, nutrition may become seriously disturbed by the total absence of the bile from the intestinal tract. The latter condition may be caused by an obstruction (coagulum), by kinking, or by opening of the common duct into the sac, as a result of an erosion. We have no operative means to relieve these conditions. If the patient's strength holds out, time will finally bring the remedy.

A COMPARATIVE STUDY OF THE PHYSIOLOGICAL ACTIONS OF BRUCINE AND STRYCHNINE.

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BUT little experimental and clinical investigation has been made with brucine, its more potent and cheaper sister-alkaloid, strychnine, having overshadowed it. However, what records we do possess indicate, for the most part, that these substances exert essentially the same influences upon the organism, the differences being in degree rather than in kind. One serious difficulty met in the studies of the actions of brucine has been that the preparations commonly found in the market are, to a greater or less extent, contaminated with strychnine, usually to such a degree that whatever actions might have been exerted by brucine seemed entirely superseded by the more powerful influences of the strychnine. Thus, in the elaborate experimental study of brucine made by Wintzenried (*Inaug. Dissertation*, Geneva, 1882) the results so closely resembled those caused by strychnine that it is still believed by many leading pharmacologists that the phenomena were due to the contaminating strychnine.

There are, however, on record certain statements which lead to the belief that brucine does possess physiologic properties entirely distinct from those of strychnine. Thus, Mays, in observations on frogs and man (*Therapeutic Gazette*, June, 1885), found that pure brucine acts as a strong local anesthetic, and Robins (*Philadelphia Medical Times*, 1879, p. 228) also noted that this substance depresses the sensory nerves. Mays asserts that brucine induces in the frog a short period of motor weakness, or even

paralysis, in the posterior extremities preceding the period of convulsions. There is also evidence to indicate that brucine is of the nature of a motor paralyzant (Klapp, *Journ. Nerv. and Ment. Disease*, 1878, p. 619; Wintzenried, *loc. cit.*; Robins, *loc. cit.*). Finally, Brunton states (*Journ. Chem. Society*, 1885, p. 143) that brucine is innocuous when taken by the stomach.

While we thus have reasons for the belief that there are important dissimilarities in the physiologic actions of these two alkaloids, it is not possible in the light of present knowledge to say to what extent they are due to variations in the purity of the drug used, to dosage, to the differences in the species of animals employed, etc.

The object of the present inquiry has been to determine to what degree important physiologic actions of brucine and strychnine are related. To that end essentially the same line of investigation was carried out as in my recent elaborate research with strychnine (*Therapeutic Gazette*, March, April, May, and June, 1892), which will form the basis of comparison with the results of the present investigation. Over 100 experiments were made, about one-fourth being upon dogs, and the remainder upon frogs. The brucine was made by Merck, a standard preparation, guaranteed to be *absolutely free from strychnine*. The specimen was subjected in our laboratory to the most rigid testing, and the results fully substantiate Merck's claim.

In the frog, after *minimal* lethal doses, no marked differences are observed in the results caused by brucine or strychnine, other than that the former is less prompt in action, that the motor disturbances caused by it are of less violence, and that it affects the volitional centers sooner and more powerfully. In the brucinized frog a failure of voluntary motion and an increase of reflex excitability are simultaneously developed, the former progressing usually with greater rapidity than the latter, so that volitional movement is, as a rule, lost before the exaltation of reflexes is sufficient to provoke convulsions. This loss of voluntary motion may be mistaken, as by Mays, for a general condition of motor paralysis. In the strychninized frog voluntary motion is also lost, but never until after the onset of convulsions. The differences, therefore, are not in kind, but in degree; brucine acting with less vigor as a convulsant, and with greater power upon the cerebrum. After the administration of much larger doses absolutely no differences are detected in the phenomena exhibited by the two sets of frogs. Brucine being absorbed with less readiness than strychnine is consequently less prompt in its effects.

The belief of Robins and Mays that brucine depresses the sensory nerves, leading to the conclusion that this action is unlike any of strychnine, is true

in fact, but not in deduction. Neither exerts any influence on the sensory nerves in minimal lethal doses, but both depress and finally paralyze these nerves when the poisons are given in great excess.

In the mammal, as in the frog, the only important differences in the phenomena noted are those of degree, and not of kind.

The statement made by Brunton (*loc. cit.*) that brucine is innocuous when administered by the stomach is not supported by sufficient evidence to give it any value, and, besides, is contradicted by the results of my own experiments. Brunton's conclusion is based upon the result of a single and by no means satisfactory experiment made upon a rat, to which he gave 0.1 gram of pure brucine, mixed with suet, so that the animal ate it readily. The rat was not affected by the dose, although another, to which the same quantity was administered by injection into the abdominal cavity, fell into convulsions within three minutes and died.

The records of one of my experiments will be sufficient to prove that absorption does take place through the stomach, but with much less rapidity than in the case of strychnine:

EXPERIMENT.—Dog; weight, 8617 kilos. 9.30. Gave per stomach through a catheter, 0.18 gram of brucine. 9.40. Acts as though he heard flies flying about his head; otherwise no apparent change. 10.30. An occasional twitch or jerk of the skin, or in one of the legs. 10.35. Twitchings and jerkings more pronounced and observed in the skin, ears, head, and extremities; reflex activity greatly increased, a slight touch causing considerable muscular disturbance; there is pronounced muscular stiffness, especially when any movement is attempted; respiration is very quiet and 24 per minute. 11.40. Vomits; respiration increased in frequency; and panting. 11.55. Salivation; marked rigidity; great hyperesthesia; a breath of air induces a condition of rigidity bordering on tetanus. 11.57. Tetanus, followed by slow, deep respirations, which gradually pass to those of a frequent and panting character. 12.20. Quiet and sickly; respirations, 140; profuse salivation; occasional slight spasms of the body and legs. 12.26. Opisthotonos; failure of respiration; heart continued beating for several minutes after the cessation of respiration.

The non-toxic result of Brunton's experiment is doubtless to be attributed to the extremely slow absorption of the poison, owing to its admixture with suet.

Whatever dissimilarities may exist in the actions of brucine and strychnine are best elicited by general and special studies, such as were pursued in the investigations with strychnine already alluded to.

When a 1 per cent. solution of brucine is injected into the external jugular vein of a dog, the general results which follow are not apparently in any way distinguishable from those resulting from the injection

of strychnine. There occurs within a few moments a condition of muscular excitement, which rapidly passes into one of violent tetanic convulsions, and death ensues immediately from an arrest of respiration, or, after a time, from exhaustion. Should, however, forced artificial respiration be practised at and after the time of the convulsive seizures, the spasms gradually disappear, the general condition of the animal becomes in most respects the same as just before the convulsions, and the effects of the poison slowly wear away. But if with the appearance of the convulsions the injection of brucine or strychnine is continued, the tetanus grows less and less violent, voluntary motion is lost, reflex excitability rapidly disappears, the spasms give place to somewhat rhythmical jerkings of the muscles (choreic in character), and these to twitchings, which, in turn, are lost, and the animal lies absolutely motionless, save for the movements due to artificial respiration and the heart-beats. The circulation and heat processes, and other important functions, generally remain in good condition, and the dog may be kept alive for hours, if not days, thus paralyzed, if brucine or strychnine be from time to time injected.

The state of absolute muscular quiet is not, as a rule, of long duration, unless the dose has been unnecessarily large, for usually, in the course of fifteen or twenty minutes, fibrillary twitchings reappear, invariably in the inverse order of their disappearance from the various parts. These movements become more and more marked, gradually passing to violent rhythmical jerkings, and finally to clonic convulsions.

These remarkable changes from the normal state to violent tetanus, and finally to complete motor paralysis, occur with such rapidity that the latter stage may be reached within three minutes.

The quantity of brucine, when intra-venously injected, necessary to cause death, is about 0.008 gram to the kilo of body-weight; and of strychnine about 0.0002 gram. The dose required to produce absolute motor quiet is for both poisons about the same, being from 0.015 to 0.020 gram per kilo of body-weight; strychnine being, perhaps, a little more powerful. Thus, it will be observed that while strychnine is greatly more powerful as a convulsant, it is as a paralyzant of practically the same toxicity as brucine.

The relative toxicity of strychnine, compared with that of brucine, is, according to Magendie, 12:1, and according to Andral 24:1, and according to my experiments about 40:1 for the dog and about 50:1 for the frog. The differences given in the proportions of Magendie, Andral, and myself, respectively, are doubtless owing largely, if not solely, to the degree of purity of the brucine employed.

These figures by no means indicate, as before stated, the relative potencies of the two poisons upon different parts of the organism. As is well known, both substances cause death by asphyxia, which results from the violent convulsive seizures; but, as I have pointed out in my memoir on strychnine, the virulence of strychnine as a convulsant in relation to its other powers is so extraordinary that a fatal result ensues long before many other important actions are developed. It is only by the prevention of the continuance of the convulsive seizures, the use of artificial respiration, and the administration of comparatively enormous doses of the drug, that its full train of action is obtained. This statement holds good for brucine; consequently, the figures indicating that strychnine is so many times more powerful than brucine signify that it is that many times more potent as a convulsant; and they must not be taken as an expression of the relative intensities of the actions of the drugs on the various parts of the economy. In some respects brucine is of equal toxic value in its action; in other respects, of greater value; and in still other respects, of less value.

A careful comparison of the results of the detailed studies made with these alkaloids shows so few and unimportant differences that the conclusions arrived at from the study of strychnine are applicable to brucine, with slight additions and modifications. In the following summary where differences exist they are distinctly stated; otherwise it may be considered that the actions and effects are identical.

1. The minimum lethal dose of brucine for the dog, when intra-venously injected, is about 0.008 gram to the kilo of body-weight, and of strychnine about 0.0002 gram, the relation being 1:40. In the frog the minimum lethal dose of brucine is about 0.1 gram, and of strychnine about 0.002 to the kilo of body-weight, when subcutaneously injected.

2. Doses of from 0.015 to 0.020 gram to the kilo intra-venously injected cause a condition of absolute muscular quiet, and by means of artificial respiration the animal may be kept alive in excellent general condition.

3. Quantities in excess of 0.1 gram to the kilo may be intra-venously injected in divided doses without causing death, provided that artificial respiration be employed.

4. The toxic actions of brucine and strychnine are so directed to the motor center in the spinal cord that the minimum fatal dose is exceedingly small, owing to the production of asphyxia or to exhaustion by the violence and persistence of the tetanic seizures. Should artificial respiration be maintained, about 500 times the minimal lethal dose may be injected without an immediately fatal result.

5. By a proper regulation of the size of the dose and the method of administration, the stage of excitement may be prolonged over an almost indefinite period, or may be so brief as to last for but a few seconds.

6. During the *stage of excitement* the following actions and effects are observed:

a. The motor disturbances and convulsions are of spinal origin.

b. The sensory nerves and muscles are unaffected.

c. The motor nerves, after the onset and continuance of convulsions, become depressed from overwork.

d. The pulse-rate is first lessened in frequency, then increased, and finally diminished. The first effect is due to a stimulation of the cardio-inhibitory apparatus, the second to its depression, and the last to a depression of the excito-motor ganglion, or automatic-motor ganglion in the heart.

e. The arterial pressure is primarily diminished, then greatly increased, and at last diminished. The first effect is due to some obscure action on the vasomotor centers in the medulla oblongata; the rise of pressure to a stimulation of the vaso-constrictor centers in the same part; and the final fall, to a depression of the heart and vasomotor centers. In curarized animals the rise of pressure due to stimulation of the vasomotor centers is relatively and absolutely greater than in the non-curarized animal.

f. The respiration-rate is not specifically affected, unless it be in the nature of a decrease, or during the period of convulsions, when it may be decidedly increased.

g. The bodily temperature is increased.

7. During the *stage of paralysis* the following are noted:

a. The muscles are not in the least affected, unless after enormously excessive doses.

b. The sensory nerves are inexcitable to strong electric currents.

c. When the motor nerves are subjected to a powerful faradic current, spasm of the muscles supplied no longer occurs, although the nerves transmit impulses from the nerve-centers—irritability is lost, but conductivity remains.

d. The pulse-rate is reduced, but the height of the curves is increased; the first effect being due to a depression of the motor ganglia in the heart, and the second effect to the greater filling of the viscus with blood, and perhaps to a direct stimulation of the heart. The cardio-inhibitory fibers are paralyzed, but no increase in the frequency of the pulse-rate is observed, owing to the predominance of the depressant action on the heart-ganglia. Stimulation of the vagi causes smaller pulse-curves, and a slight increase in the frequency of the beats.

e. The arterial pressure is increased, unless the dose has been greatly in excess, when it is diminished. The increase is due to a stimulation of the vasomotor centers in the medulla oblongata, and the decrease to a depression of the heart and to vasomotor paralysis. The increase of pressure is greater and more persistent in curarized animals. In non-curarized animals the pressure sinks below the normal immediately after the tetanic paroxysms, but in those curarized this depression is less marked. Asphyxia and electric stimulation of a sensory nerve fail to cause a rise of pressure, as in the normal animal; on the other hand, asphyxia is always accompanied by a fall.

f. The hemoglobin is in some way affected so that it cannot be oxygenated to the normal degree, although the spectroscope reveals nothing but oxyhemoglobin.

g. The temperature may be increased or decreased by brucine, but is always increased by strychnine. Cocaine is unable to cause its characteristic increase of heat-production and temperature, as in the normal animal. Apparently, both strychnine and brucine paralyze the accelerator thermogenetic centers, and leave intact the automatic thermogenetic centers.

h. The paralytic condition caused by strychnine and brucine closely resembles that produced by curare, but is in many ways entirely distinct.

8. The chief differences in the physiologic properties of brucine and strychnine are as follows:

a. Brucine is less rapidly absorbed than strychnine, and, as a consequence, is less prompt in its actions.

b. Brucine is from forty to fifty times less powerful as a convulsant, and, therefore, proportionately less fatal.

c. Brucine acts relatively more powerfully on the volitional centers in the frog than as a motor excitant, with the effect oftentimes of causing in these animals a loss of volitional movement preceding the stage of convulsions. In mammals, however, it does not seem that either poison ever destroys volition before the appearance of convulsions.

d. In excessive doses brucine is more poisonous to the sensory nerves than is strychnine.

e. During the last stage of the poisoning the action of brucine on bodily temperature is uncertain, while that of strychnine is positive. Brucine is, ultimately, a stronger depressant to the heart, and after enormous doses more toxic to the muscles.

9. The green frog (*Rana esculenta*) is somewhat more susceptible to brucine than the spotted frog (*Rana temporaria*). The same difference I have noted with strychnine.

The results of this research render it obvious that the physiologic actions of brucine and strychnine are essentially identical, the differences being prac-

tically solely in degree, and not in kind. This, together with the fact that the convulsant action of brucine is in the mammal about forty times less than that of strychnine, indicates that brucine will prove not only a safer drug, but of infinitely greater value as a general therapeutic agent.

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INFLUENCE OF DISEASES OF THE EAR UPON THE MENTAL AND PHYSICAL DEVELOPMENT OF THE CHILD.¹

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THE senses are the media through which impressions from the outside world are transmitted to the brain, and upon the accuracy of these impressions depends the quality of the conception or thought. Besides hereditary and congenital gifts, the primary factor in mental development is dependent upon the accuracy of the constitution of the special senses, and the impressions which the infant brain receives through these senses from its environment provide the material out of which are formed perceptions and conceptions. The fundamental value of the special senses for the development of the mind is already conceded, and, therefore, the more accurate the development of the special senses, the higher and more accurate will be the percept; for example, when a child sees everything indistinctly (as in myopia), or hears only a confusion of sounds, then the ideas accompanying the images or sounds will also be indistinct and confused. This important fact of the relation of the sense-apparatus, especially of the eye and ear, to the educational development of the child has been recognized by physician and teacher, and has been considered of such vital importance that of late years special attention has been given it by eminent scholars; numerous projects have been brought forward, and books have been written in order to protect the child with defective sense-apparatus in its education and development; but what is very remarkable, most of the former schemes were for the special sense of seeing only, while those for the sense of hearing had been neglected until the most recent years.

A part of the explanation of this phenomenon can be found in the fact that the methods and instruments used in the examination of the eye are universal. These methods show us the slightest defect in the organ of seeing, and thus, for the slightest disturbances of the organ, as, for instance, in refractive and accommodative anomalies, immediate relief can be obtained. Far different from this is the detection of defects in the organ of hearing. Even to-day we have no exact universal methods; the

¹ Read before the Wisconsin State Medical Society.

watch-tick, the Politzer method, the tuning-fork, the voice, etc., are more or less faulty, and cannot be compared with the accuracy of the dot, letter, and color-test of ophthalmology. With the ophthalmoscope alone an examination and diagnosis can be made independently of the intelligence of the patient. The results of the ear-test depend upon many secondary considerations, as *e. g.*, upon temperature, environment, character of the voice of the examiner as to rapidity, clearness, and intensity, and also upon the bashfulness and reticence of a young patient. These facts may explain why the detection of these defects has been neglected—a fact to be regretted, as the ear takes a more prominent part in the child's development than the eye. In childhood the material used at home and at school appeals more to the ear than to the eye; before the infant has the full use of the eye it recognizes the voice of its mother and separates this voice from all other sounds, and long before the child has learned to read he has learned, through the ear, to talk.

From these facts we must recognize how important to the child is a disease of the organ of hearing, and as the ear is more prone to disease in childhood than any other organ, how injurious a defect it must be to the child's education and development. During this period, in which the organ is of most importance to the child, it is liable to involvement in a number of diseases which threaten, temporarily, to destroy its usefulness and in a majority of instances to cause permanent destruction. Among these diseases are scarlatina, diphtheria, measles, and cerebro-spinal meningitis. Bezold, who paid special attention to the subject, found that of 1807 school-children the hearing was impaired in 23.74 per cent. through scarlatina; in 52.49 per cent. through measles; in 22.69 per cent. through diphtheria. Burkhard Merion¹ found that of 1950 school-children, the hearing was impaired through scarlatina in 85; and several others, among them Weil and Buerkner, have given statistics to show what dangerous consequences these affections bring to the child's hearing. Hereditary tendencies, congenital diseases, injuries by foreign bodies, and diseases of the nose and throat greatly augment the dangers—all of which led Troeltsch, after careful consideration, twenty years ago, to affirm that between the ages of twenty and fifty, if the hearing is not impaired in both ears, in one out of three, it is at least impaired in one ear—a condition that obtains even to-day.

The ravages that the acute infectious diseases in childhood produce upon the hearing can better be imagined than stated; the weaker ones die and only the stronger remain to tell the tale. In a large

number of cases the functions of both ears are permanently destroyed, so that when we speak of the influence of defective ears on the child's education and development, we must speak of the lesser disturbances only.

The symptoms not being so conspicuous, as long as the child is taught by the home circle alone the consequences are overlooked and misunderstood. The defects will be compensated for at first by a greater amount of attention, but soon the child must suffer from its unmerited condition. The little one who can understand only half or wrongly the sentences, will answer not at all or not intelligently. The treatment accorded a child by its playmates on account of so-called "inattention," "laziness," or "bad humor," brings the first wounds to its feelings. A disagreeable, peevish, unfriendly child is often the result. The little one, putting forth its best efforts, realizes that he suffers unjustly. Every aurist can relate from personal experience how, through a proper course of treatment of the ear, a disagreeable, morose face can be changed into an intelligent, bright one.

As the child reaches the age for school the character of hearing plays a still more important rôle in its education. We are indebted for the first scientific observation upon this phase of the subject to Dr. William Von Reickard,² who found the following results: Taking as the standard for a normal ear the hearing of a watch-tick at a distance of from thirty to sixty inches, he found that, of 1055 examined, 22.37 per cent. could hear the watch from 0 to 18 inches only. Dr. Weil, of Stuttgart,³ examined about 6000 school-children; taking as the standard for a normal ear the hearing of a whisper at a distance of from 20 to 35 meters, he found that 30 per cent. showed a defect in hearing. Of American aurists, Samuel Sexton⁴ has examined 570 children (of whom 261 were negroes) and found that 13 per cent. showed pronounced defects of hearing. Norrell⁵ examined 491 children. He found 72 with defective hearing on both sides, and 53 with defect on one side, *i. e.*, 25.5 per cent.

I do not affirm that defective hearing is always the shield for mental dulness. As I have already said, the hard-hearing pupil is not so easily detected, as is, for instance, a myope or hyperope, and it often occurs that a teacher mistakes a hard-hearing child for an inattentive one, and, therefore, the importance to teachers and parents of knowing that a dull child is often a dull-hearing child. Bezold

¹ Ueber die Bedeutung eines guten Gehöres für die Schulbildung, St. Petersburg med. Wochenschrift, Band xxix, 1878.

² Die Resultate der Untersuchung der Ohren, Zeitschrift für Ohrenheilkunde, Band xi.

³ Zeitschrift für Ohrenheilkunde, Band xi u. xii.

⁴ Ibid., Band xiii.

⁵ Sammlung klin. Vorträge von Volkmann.

found that out of 1289 pupils examined, the aural functions were not normal in 296, and of these there were 241 whose defect was known neither by the child nor by the teacher. When a diseased condition is present variations in temperament have an important influence; a pupil, to-day bright and attentive, may be to-morrow dull and listless. The cause has not been attributed to its true source; an unjust judgment metes out severe and undeserved punishment, changing a bright sunny nature into a morose and sullen disposition.

Dr. Gellé, of Paris, has examined in several classes pupils denominated "bad" and "good." Of the 20 bad ones, six only could hear a watch-tick at a distance of one-half meter, and of the good ones there was none that could not hear the watch-tick at a distance of more than one half meter. On further examination it was found that, of seven pupils in the rear seats, placed there on account of laziness and inattention, four could hear the watch-tick at a distance of only from one-half to one-tenth of a meter, and two could hear with the right ear at a distance of not greater than one-half meter; with the left one-fourth of a meter. Of 12 boys designated by the teacher as poor pupils only two had normal hearing, and 10 showed disturbances in one or both ears, and neither parents nor teacher knew of their condition.

As the normal condition of the ears is one of the necessary factors in a child's mental development, a defective condition will lead to a defective development. Much of the material for his education will be useless or misapplied; thoughts become confused, the continuity of ideas broken. Through new and unsuccessful efforts to grasp the idea and to answer correctly, much of the brain-force is wasted; discouragement and unwillingness to make further effort follow. In this state of mind, smarting under the feeling of unjust judgment of teacher and parents, taunted by playmates and classmates, how can there be developed a sunny, happy disposition? All of us have had an opportunity to observe the actions of blind and deaf children and have remarked the change in the mental character of the child following the loss of a special sense.

From the authorities already cited I find that 2 per cent. of the children examined were suffering from suppurative otitis, and in the majority of cases tubercle-bacilli could be found in the secretion. This fact is of great importance, as our knowledge of the influence of infectious material shows that teacher and pupils are exposed to the infection through the impregnated air; aside from this the odor emitted is torture to those sitting near, and, therefore, laws should be enacted prohibiting children with "running ears" from sitting in the same room with other pupils.

I find further that 42 per cent. of the children suffering from ear-disturbances, if placed under proper treatment, showed a favorable progress. I think these figures sufficient to encourage us and give us the hope that the same attention will be given to the hygiene of the ear as is given to that of the eye. In these modern times, when a child grows to be master of so many branches of learning, there is needed a perfect condition and full development of all the senses, and especially of the sense of hearing.

THE USE OF CHLOROFORM AS AN ANESTHETIC: WITH A CASE.

BY JOSEPH B. COOKE, M.D.,

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THE object in reporting the following case is, primarily, to add to the already enormous number of arguments against the use of chloroform as an anesthetic in all instances in which ether can, by any possibility, be substituted, and incidentally to refer to the method of resuscitating the patient, by which means in this case life was undoubtedly saved:

CASE.—Priscilla —, colored, eight and a quarter years of age, required a minor surgical operation about the genitals.

The room in which the operation was of necessity performed was so small that the operating-table stood in close proximity to a stove. This rendered the use of ether inadmissible, and chloroform was reluctantly employed, as cocaine-anesthesia had been unsuccessfully attempted on the previous day. The heart and lungs were normal, and the urine contained no albumin. The child was well nourished and in good general condition.

The administration of chloroform was commenced at 11.30 A.M., by my friend, Dr. Walter A. Dunkel, who used Squibb's preparation and a wire-frame inhaler. The anesthetic was well taken by the child, who neither struggled nor evinced any appreciable signs of fright.

Anesthesia was accomplished in fifteen minutes. A considerable quantity of chloroform, however (nearly ziv), was needed to produce narcosis, which was at no time complete, as the conjunctival reflex was present throughout.

The operative procedure was of two minutes' duration, and was attended by no loss of blood, and the anesthetic was stopped.

The respiration and pulse continued regular, and, under the circumstances, normal for fully a minute, when signs of embarrassed respiration became manifest. The neck was extended, and the jaw thrown forward, causing temporary improvement. The radial pulse now became very rapid and feeble, and mxx of brandy were given hypodermatically. The pulse responded slightly to the stimulation, but quickly became imperceptible at the wrist, and

respiration ceased entirely. The conjunctival reflex was now absent.

Dr. Dunckel at once grasped the child by the knees, and, holding it before him with the body hanging head downward, shook it vigorously up and down several times, somewhat after the method suggested by Prince.¹ The child was then replaced on the table, with the head lowered (preparatory to proceeding with the Sylvester method of artificial respiration and direct insufflation of the lungs), but she immediately gave a long gasp, followed by several short inspirations, after which respiration became regular and continued so. The pulse also reappeared at the wrist, but was still flickering and of poor quality, and $\text{m} \times \text{v}$ of brandy were injected in the leg. The heart did not yet respond as strongly as was desired, and a towel wrung out in very hot water was applied to the precordium. This stimulation strengthened the heart's action, and the child drew up its limbs somewhat, and cried out feebly. The pulse continued to improve slowly, but surely, and at the expiration of half an hour was 86, and of fairly good strength, while the respiration had become more deep and regular. The patient appeared, however, to be suffering from severe shock, and made feeble replies to questions after they were repeated several times in a loud tone.

During the past five years I have either administered or witnessed the administration of an anesthetic in several hundred cases. In about 3 per cent. of these cases chloroform was used, and in the remainder ether was the agent employed. I have never yet, during ether-narcosis, witnessed a case of collapse that could be fairly attributed to the drug. Yet, in the comparatively small number of cases of chloroform-anesthesia that I have observed, I have already seen two most alarming instances of suspended animation, neither of which, however, resulted fatally.

In the case here described the operative procedure was merely the breaking up, with a probe, of some adhesions between the prepuce and the glans of the clitoris.²

This was accomplished so rapidly, when once begun, that, aside from the fact that it was an "operation(?) on the genitals" it can hardly be held responsible for the frightful symptoms that followed.

The other case mentioned (in which I took the part of a spectator only) was that of a boy of about ten years of age, who had received a severe contusion of the perineum and laceration of the deep urethra, with extensive extravasation of urine, call-

ing for immediate external urethrotomy. He was suffering slightly from shock, but not alarmingly so. Chloroform had been given for about three minutes, when he went into sudden and complete collapse, from which he was resuscitated only by the most vigorous measures, continued for a considerable time. The operation was then performed under ether, with no further mishap.

In each of the instances detailed the anesthetic was exhibited with great judgment and skill.

In the case of the negro child the collapse was undoubtedly due to the chloroform, and to the chloroform alone; while with the other child the superior safety of the ether was at the time proved beyond the shadow of doubt.

When such results are added to the enormous mass of evidence that has been accumulating ever since chloroform was first introduced into medical practice, it seems only fair to ask that ether, so well proved to be the least dangerous agent of the two, should be employed in every case in which it is not absolutely contra-indicated.

Too many men make frequent use of chloroform because it is cheaper, less bulky, less irritating, and more easy of administration, than ether. This is an evidence of false kindness to the patient, and occasionally of actual laziness on the part of the physician, that cannot be too strongly deprecated.

The relative merits of the two drugs in cases of midwifery will not be discussed in this paper, but as to the "remarkable safety" with which chloroform may be given to children, I have grave doubts. It must also be remembered that children are not often subjected to the severe, protracted operations that are so frequently performed on adults. The majority of operations on children are of a plastic nature, undertaken when the general condition of the patient is good, or else they are of very short duration, such as the opening of an abscess or the curetting of a sinus.¹

¹ The entire number of operations performed at St. Mary's Free Hospital for Children during the year ending October 31, 1892, was 212. Of these, 149 (70 per cent.) were of the nature mentioned as follows:

Amputation of supernumerary finger . . .	1
Circumcision . . .	3
Straightening bent knee . . .	1
Correcting deformity after fracture . . .	1
Hare-lip . . .	1
Osteoclasis, tibia, bow-legs . . .	13
Osteotomy, " . . .	2
" of cuneiform . . .	7
" " ankle . . .	1
" " knee . . .	3
" for genu valgum . . .	11
" " talipes varus . . .	1
Plastic operation on finger . . .	1
Phelps's operation for talipes . . .	3
Radical cure, hernia . . .	8
" " hydrocele . . .	2
Removal of congenital cyst of neck . . .	1
Tenotomy, tendo Achillis . . .	5
Curetting sinuses . . .	41
Opening abscesses . . .	43—149

Vide Annual Report for 1892.

¹ Medical Record, September 17, 1892.

² This feature of the case, while not applying to the present article, is of special interest, as such adhesions are said to rarely occur in females of the negro race, and then *only* in those individuals who have a large admixture of white blood.

In this instance the adhesions were very complete, the prepuce covering the entire glans, and being so firmly attached that considerable force was necessary to effect the separation.

The parents of the child were both seen by the writer, and are full-blooded blacks.

Vide Morris, American Journal of Obstetrics, December, 1892.

On the other hand, the adult is usually placed under the knife when he has long been a sufferer from some surgical disease, or when he is in severe shock dependent on a serious accident. In either event his whole system is decidedly below par, and a fair comparison of the action of the chloroform in the case of the child is out of the question. When statistics are published to show that in an equal number of cases of chloroform-narcosis in adults and in children the death-rate attributable to the drug has been greater in the first class of patients, it must not be forgotten that they were by no means as well able to resist the toxic action of the drug as were the children, and that the conditions under which it was diminished were not the same, causing, in consequence, a serious fallacy in the argument.

There are one or two points in the administration of ethereal anesthetics to which I wish to refer briefly.

No one should attempt anesthetization unless he is thoroughly familiar with every known method of resuscitation in case an accident should occur, and it is of equal importance that he should have at hand, and ready for instant use, all the instruments and drugs that might, in any emergency, be needed.

A table, within easy reach, should be supplied with whiskey, tr. strophanthus, tr. digitalis, sol. strychnine sulph. (gr. $\frac{1}{16}$ to $\frac{1}{32}$), and a hypodermatic syringe filled with whiskey, together with a mouth-gag, tongue-forceps, and the necessary instruments for the performance of tracheotomy.

In hospital practice these articles are usually provided, while in private practice they are often conspicuously absent, a syringe and little whiskey being deemed amply sufficient. There should also be some boiling water in readiness, especially during chloroform-anesthesia, as the direct application of a very hot wet towel to the precordium is one of the best and most rapid heart-simulants we have, being often effectual when there would be no time for any known drug to act, however administered.

These precautions should be taken preparatory to the exhibition of an anesthetic for any purpose whatever, whether for surgical examination merely or for a severe and protracted operation.

Of the various methods of artificial respiration, the Sylvester is probably best suited to this class of cases, but they are all so generally known as to need no further mention here. At the same time, however, any physician, who has never actually seen artificial respiration performed would do well to ask some one who is thoroughly familiar with the technique to demonstrate it to him, practically, on his own body. The knowledge so gained will never be forgotten, and may be the means of saving lives.

Direct insufflation of the lungs often proves of

inestimable value, not only in cases of collapse during anesthesia,¹ but also in the suspended animation of the newly-born child.²

The method of resuscitation suggested by Prince,³ and explained in part only in this article, is an important addition to our knowledge on this subject, and the plan described by Maass,⁴ as in use at the Göttingen Klinik, is undoubtedly of great service.

341 WEST FIFTY-SIXTH STREET.

"MOUNTAIN FEVER."

BY HUBERT WORK, M.D.,
OF FURLEO, COLORADO.

A MUCH-VEXED question among practitioners throughout the entire territory influenced in its climate by the Rocky Mountains is that of "Mountain Fever." The affection is believed by many to exist as a distinct type of disease, and is defined by Dunglison as "a form of fever said to be peculiar to the elevated regions of the Rocky Mountains, and seen only at an elevation of 7000 feet and upwards."

Mountain fever is not, I believe, a disease *sui generis*, but is a group of symptoms dependent upon other and distinct pathologic conditions.

Incomplete forms of specific continued fevers, such as typhoid and relapsing fevers, localized inflammations partially developed, acute catarrhal affections of the alimentary or respiratory mucous membranes, and disturbance or exhaustion of the nervous system, will, if diligently sought for, furnish a basis for diagnosis in all cases imputed to it. The so-called mountain fever of Colorado was discovered by the pioneer hunters and miners, and is yet believed by the laity and many physicians to be the result of some occult mountain influence, although it is diagnosed on the plains at an altitude of 4000 feet and upwards.

So far as known, no believer in mountain fever has been able to assign to it any constant pathologic lesions, although it has been credited with many deaths, and its lesions have been the quest of many autopsies.

It is true, I believe, that a great majority of all so-called cases of mountain fever in adults can be safely classed under the head of simple continued fever, as described by James H. Hutchinson in *Pepper's System of Medicine*, but recognized and treated since the time of Hippocrates. In both diseases the attack may be sudden in onset, with chill and febrile reactions, or may be preceded by days of languor, loss of appetite, headache, muscular pains,

¹ This procedure is clearly explained in Agnew's Surgery, second edition, vol. ii, p. 288.

² Forest, Medical Record, April 9, 1892.

³ Op. cit.

⁴ International Medical Magazine, July, 1892. Medical Record, September 17, 1892.

and disturbed sleep. In both the fever rises rapidly, and has often reached its height before the patient seeks advice.

Vomiting and constipation are about equally common in each, but in either there may be diarrhea, without nausea. The headache may assume a darting, stabbing character, or the restlessness may merge into delirium; the longer continued the active symptoms the more tedious the defervescence in both diseases.

Many patients suffering from "mountain fever" present symptoms of hepatic derangement, with accompanying gastric disturbance, typical of what is known in some localities as "bilious fever," and readily yielding to mercurials, Rochelle salts, or podophyllin, with rapid subsidence of the threatening fever.

The type due to prolonged and exhaustive physical exertion and the subsequent disturbance of nervous equilibrium, however, presents less, and often no evidence of hepatic implication, but a higher range of bodily heat, with more active cerebral symptoms, and a cleaner and redder tongue. This type is most common among laborers who are exposed to the sun, and although recent arrivals at any given point of high altitude are more subject to the disease, they do not exhibit symptoms different from those who are already acclimated by many years' residence, except perhaps in point of severity.

The name "mountain fever" is limited by not a few physicians to this type.

It is true that those habituated to a low elevation experience great difficulty in accomplishing at an altitude of 4000 feet and upwards what was previously but an ordinary day's labor for them, and performed with ease at lower altitudes. This extra demand on the physical resources, under climatic conditions including great elevation and, during the fever season, intense mid-day heat followed by a low nocturnal temperature, with the consequent disturbance of the heat-centers, is a very productive cause of a fever which does not, however, present features sufficiently distinctive from those of simple continued fever to justify a separate name.

Identical exciting causes will produce similar groups of symptoms designated in this country as "mountain fever," but in lower altitudes as bilious, simple continued, catarrhal, idiopathic or malarial fever.

It is probably true that modified forms of typhoid fever are, next to simple continued fever, most frequently mistaken for mountain fever. Consequently there are physicians who believe them to be of identical origin, but modified in outward manifestations by climate.

It is a pertinent fact that, in localities where mountain fever is regarded as endemic, simple con-

tinued fever, so clearly described and given its place in medical literature, is rarely if ever spoken of, and the presence of malarial influences is strenuously denied.

It is very well known that climate is a potent factor in the etiology and symptomatology of many diseases, among which is typhoid fever, but it is impossible to reconcile with the identity of these diseases the facts that we have typhoid fever with its typical temperature-curves, febrile period, pathologic lesions, and other definite symptoms, while the only constant symptom of its supposed congener is fever, without characteristic features, but having irregular exacerbations and remissions, both as to time of recurrence and degree of severity.

From a list of some fifty patients admitted to the St. Francis Hospital at Colorado Springs during the summer and autumn of 1890, sent there with the diagnosis of "mountain fever," Dr. W. A. Campbell reported the tabulated histories of thirty-two cases at the annual meeting of the Colorado State Medical Society.

In eighteen the rose-colored spots of typhoid developed. In six they were absent, and in eight their presence or absence is not stated.

Post-mortem examinations of the five cases terminating fatally revealed the intestinal lesions of typhoid fever in all.

Campbell's observations, which have been thorough rather than extensive, convinced him that mountain fever may be either typhoid, malarial, intermittent, or remittent.

The onset of mountain fever is described as "abrupt and its duration from four days to eight weeks, terminating either by crisis or lysis." A febrile disease having such a variable fever stadium, argues against its own specificity and suggests the suspicion that it is a symptom dependent upon indefinite pathologic conditions.

Less harm is suffered by adults through the diagnosis of mountain fever than by children, in whom diagnosis is always more difficult and treatment most urgent.

It is far from easy to make a differential diagnosis between pneumonia in an infant and a disease said to be common to children, claiming for its prominent symptoms the sudden and persistent rise in temperature, anorexia, vomiting, accelerated respiration and restlessness, followed by stupor, with an absence of physical signs.

Meningitis, scarlet fever and measles, without eruption or with unnoticed eruption, develop symptoms entirely compatible with mountain fever as it is frequently described.

To rest upon the diagnosis of mountain fever as the disease, when the cause of it is some definite inflammation, the local signs of which are beyond

reach of observation, partially developed or transient, conditions common to children, is to multiply sources of error in diagnosis.

Seven years of search for this chameleon of diseases in a locality where tradition held it to be a necessary feature of acclimatization have failed to convince me of the individuality of mountain fever; in my opinion it is simply the febrile manifestation of various diseased conditions capable of classification only as belonging to other diseases.

It would be to the credit of diagnostic accuracy if the vague term "mountain fever" were expunged from the nomenclature of Rocky Mountain practitioners. Its perpetuation, conveying the impression that it is a distinct disease, indigenous to the mountain regions, but without specific cause, lesions, characteristic symptoms, duration, mode of attack or retreat, can only serve to confuse diagnosis.

THE USE OF GOLD AND MANGANESE IN TUBERCULOSIS.

BY OSCAR H. MERRILL, M.D.,
OF CORINNA, MAINE.

NOT long ago it would have been little short of heresy to doubt the sufficiency of what has, irreverently enough, been called the bug pathology of tuberculosis. It is now, however, becoming daily more and more evident that the facts of human pathology cannot all be explained by the test-tube or the *Rein Cultur*.

There appears to be at present something very like a schism in Deutschland. One section of the German learned world has lately taken to eating the pure cultures generated by another section, and instead of promptly dying, as they should, the parties of the first part persist in living and thriving, to the great disgust of the parties of the second part—thus giving a scientific application of the old saw: "The proof of the pudding is in the eating." This practice ought to be encouraged, for, as a little reflection will show, we have here great possibilities in more directions than one.

Those who spend their days and nights with tuberculosis; who study the disease in its various forms in the different generations of the same family; who see and treat those delicate, scrofulous, hysterical creatures; who see acute tuberculosis kill one, tuberculous meningitis another, hip joint disease a third, acute rheumatism with endocarditis a fourth, while a fifth passes on into nervous invalidism, are pretty likely to think, if they do not say, that, after all, the tubercle-bacillus is a very small part of that vast field that we call tuberculosis. In our wild chase after bacilli with the higher powers, it is well to have a little care lest we become myopic, and fail to see some very plain facts regarding nutrition that lie

just beyond our professional noses. Moreover, it seems probable that the essential facts that make for or against tuberculous degeneration lie far beyond the reach of the immersion-lens, in that vast labyrinth that we call physiologic chemistry.

The haters and critics of our profession will not soon tire of repeating the tales of those bacillus-hunters who, emboldened by a more or less cosmopolitan clapping of scientific hands, left their laboratories and entered the hospitals—with what result all the world knows.

In THE MEDICAL NEWS of January 30, 1892, a paper by the present writer was published on "The Use of Gold and Manganese in Tuberculosis;" and it now seems desirable to give some account of work in the same line during the past year. Twenty patients, in addition to those mentioned in the previous article, have, during the last sixteen months, been under treatment by this method. These cases have been studied as carefully and as critically as possible, and in estimating the results of treatment, it is believed that due account has been taken of those variations in the course of the disease, as it occurs in different persons, and of those natural periods of quiescence which, indeed, may occur without treatment of any kind and which have so often led the profession, as well as the laity, to mistaken conclusions.

In this last series of cases, as in the former, no serious accident, either septic or inflammatory, has occurred. Nevertheless, the following two instances will perhaps serve to show that some judgment, great care, and absolute asepticism are essential in using the remedy:

A man of thirty, with genital tuberculosis, having had an injection administered in the calf of the leg, called attention two days after to a considerable swelling of the part. There was also slight increase of pulse and temperature, and some discomfort, though he continued at work.

A lady of fifty, with chronic pulmonary tuberculosis had received the injections regularly for two months without inconvenience, and her weight had, in that time, increased thirteen pounds, when she gradually developed intense jaundice with swelling of the face, but without albuminuria. This condition soon disappeared on stopping the injections, but shows itself again when the remedy is used oftener than once in five days.

As these patients were all seen in private practice, they were never regarded as "clinical material," to be used for experimental purposes. Whether true or not, every one of them was assumed to be a "human being," with a life worth saving, and in the treatment nothing was omitted which seemed likely to do good.

Necessarily, therefore, in many instances some of the conditions essential to a rigid scientific investi-

gation were absent; but in a few cases, circumstances beyond control, such as the stupidity or prejudice of a patient, furnished nearly ideal conditions for a test-experiment. Thus, a young man with incipient pulmonary tuberculosis had been under treatment with cod-liver oil, creasote, arsenious acid, and some general hygienic measures, and in two months had gained five pounds in weight. After great efforts he was finally induced to receive the injections regularly, and in sixteen days his weight increased twelve pounds. He then failed to attend regularly and his weight decreased three pounds, though the general treatment was continued.

In a number of other cases the improvement was as surprising and nearly as rapid, though the proof of the influence of the injections was less positive. In the case of a woman with very slowly progressing chronic pulmonary tuberculosis of two years' standing, and whose environment was in every respect bad, no effect was apparently produced by forty injections. To be sure, there was some improvement, but not more than might have been expected from the other remedies which were given simultaneously. In a girl of twenty, with acute pulmonary tuberculosis, far advanced before coming under observation, the gold and manganese produced only slight and temporary improvement.

The remedy shows its value most markedly in the incipency and in the first stage of pulmonary tuberculosis. Sometimes, as in the case cited, the change for the better is immediate—almost startling. More often, as might be expected, there has to be fought a longer battle, and victory comes later—in three, four, or six months.

It ought to be stated that nearly all of these patients belong to that great undisciplined class that pays little, if any, attention to directions concerning diet, clothing, ventilation, and general mode of life. With these people change of climate is not to be thought of, except those changes for which New England has become famous.

Ten years of experience in treating tuberculosis previously to 1891 gave little ground for hope under such conditions as exist here. In that year gold and manganese was added to the other measures employed; and though patients have been more numerous lately, only one has died from pulmonary tuberculosis, and that one had her demise precipitated by a railway accident. One other, seen too late, is *in extremis*. This is a very different record from any previously obtained, and after allowing for coincidences and other sources of error, a considerable part of this success must be attributed to the new method.

A medical neighbor, Dr. C. A. Moulton, of St. Albans, Maine, who is a very careful and conservative practitioner, has for some months been giving

this treatment a trial in a number of cases, and he reports most encouraging results.

An experience of nearly two years seems to show plainly enough that we have here a remedy of real power—a remedy that refuses to pass into oblivion with potassium cantharidate, sulphuretted hydrogen, and many others of the same ilk. It will be seen that the conclusions here reached are very nearly in accord with those of Dr. John Blake White, whose writings should be consulted for further details.

CLINICAL MEMORANDA.

THREE UNUSUAL FRACTURES.

BY LIEUT. A. E. BRADLEY, M.D.,
ASST. SURGEON U. S. A., FORT SULLY, S. D.

[Published by authority of the Surgeon-General.]

CASE I.—C. W. M., on May 10, 1890, while intoxicated, fell down the "bluffs" at Bellevue Rifle Range, and sustained a severe punctured wound of the left side of the face from the stump of a small shrub which had been cut with an axe, leaving a sharp point. The stick entered below the inferior maxilla and passed upward through the cheek far enough to injure the facial nerve and to cause facial paralysis, which persisted for several days. This wound healed under antiseptic by first intention.

An injury of a more serious nature, however, was discovered—a fracture of the left ilium. A large ecchymosis over this region called attention to what was shown on examination to be a transverse fracture. The fragment could be grasped by the hand and crepitus easily produced. Shortly after the injury was received the patient passed bloody urine, but blood was noticed only at this time. The fracture was treated by means of broad bandages and adhesive strips, and recovery was uneventful. In about four weeks the man was restored to duty.

CASE II.—F. J., while on duty on August 16, 1890, at the rifle range already referred to, was injured by a fall from a government wagon, and was attended by me immediately afterward. Inspection disclosed a fracture of the head of the tibia extending obliquely downward and outward, making a wedge-shaped fragment, base up, and the line of fracture extending into the joint.

There was also a partial luxation of the head of the fibula; the ligaments were so torn that the bone could be readily displaced by manipulation, though no marked deformity existed. The tibial fragment could be moved to and fro under the hand, producing distinct crepitus.

The leg was placed on a posterior splint, and the patient was at once transferred to the Post Hospital, Fort Omaha. On his arrival there, as was afterward learned, the dressing was inspected, and, as it seemed to be properly adjusted, it was not disturbed, and the patient was placed in bed. I did not see him again until some time afterward, when he was noticed on crutches one day in the ward. I observed that the leg seemed to be thrown too far out, but this peculiarity attracted no particular attention, as it was thought that it was probably brought about by a voluntary effort of the patient.

It was later evident that deformity existed, and that the

general appearance of the leg was that of "knock-knee." This was easily explained by bearing in mind the peculiar form of the fracture, and noting that a slipping up or down of the fragment must necessarily have changed the axis of the leg, if it became fixed and united out of proper position. The fragment had slipped down, and had united while thus displaced; for the condyle of the femur to oppose this portion of the tibia, it was necessary that the leg be thrown outward, thus simulating "knock-knee." (See Figs. 1, 2, and 3.)

The possibility of such a result, or one identical in its effects, has long been recognized, and warned against by surgeons, in fractures involving the condyles of the humerus, and extending into the elbow-joint. One of the main points to be remembered in treating a fracture

upper third, resulting in knock-knee to the extent of requiring the soldier to walk in an awkward manner; there is weakness of the leg, and a limp at a faster gait than a walk. He has been under observation for six months, during which time no change has been noticed in the disability."

In view of the results, it seems to me that the dressing in such cases should be a lateral splint on the side opposite the fracture, together with the posterior splint; possibly an adhesive strip, passing from below upward, would aid the keeping of the fragment in proper position. Such a dressing accurately applied should give satisfactory results. That this fracture is rare is evidenced by the fact that few writers have described it and the possible resulting deformity.

FIG. 1.

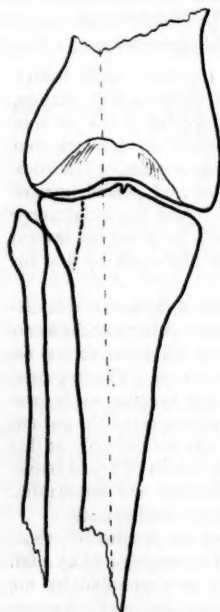


FIG. 2.

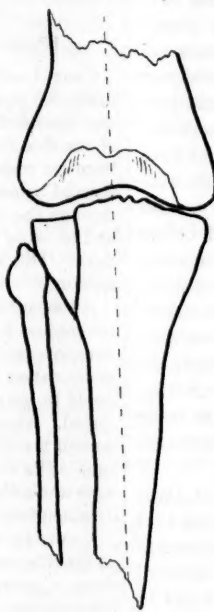
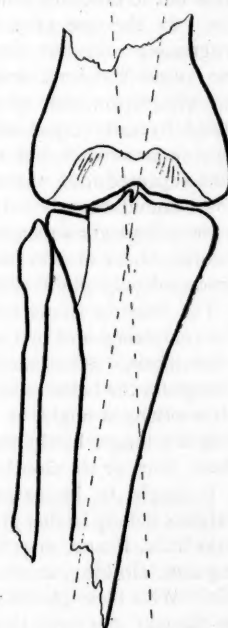


FIG. 3.



Fracture of the tibia of the right leg, anterior aspect, the patella removed.

of the internal condyle is not to permit the fragment to slip up, and there unite, interfering with or destroying what has been termed the "carrying function" of the arm. Stimson speaks of the caution to be exercised in order to prevent lateral displacement in these cases of oblique fracture into the knee-joint, lest a permanent genu valgum or genu varus result. The result in this case shows the importance of keeping this possibility in mind. Though such fractures are rare, it is important that they be understood, and that care be taken to insure a satisfactory result.

In this case the man was finally returned to his station, Fort Douglas, Utah, with firm union; but the displacement was such that it was deemed for the good of the service to discharge him on surgeon's certificate of disability. Remarks made by the surgeon who recommended his discharge at the time are as follows: "Discharge is recommended for fracture of the left tibia,

CASE III.—G. W. M., on April 28, 1892, while jumping in the gymnasium at Columbus Barracks, Ohio, fell and struck the point of his elbow directly on the floor with considerable violence. I saw him immediately, and examination disclosed a transverse fracture at the middle of the olecranon process, the fragment being separated an inch or more when the forearm was flexed, but easily placed in proper position. The man stated that before his enlistment he had been pitcher of a base-ball team, and that he had been unable to completely extend this arm, the right, for some time. His statement was borne out by the failure of manipulation to produce full extension; it was also noted, when a forced effort was made to fully extend the arm, that there was produced an over-riding, or better described, perhaps, as a tilting, of the separated fragment.

The parts seemed to be best in apposition when the

forearm was slightly flexed, and it was, therefore, dressed thus, using anterior and posterior felt splints. A broad strip of adhesive plaster was first passed from above the fragment down in front of the forearm, to assist in maintaining the fragment in position. The man complained of no pain, and the swelling which followed the injury was very slight. Passive motion was commenced on May 10th, but on the 12th the case passed from observation, when he left Columbus Barracks to return to his regular station.

I am indebted to Major W. E. Waters, Surgeon U. S. Army, for further notes on the case, concerning which he writes as follows:

"Passive motion was commenced while in your hands, which was continued regularly in the hospital until he went on furlough, June 11th. The patient returned July 11th, with a partial firm ankylosis [?] rendering extension of the arm any further than the position in which it was treated impossible. He represents that while he was away the arm was manipulated by a doctor, with a view to restoration of motion, etc. He has perfect complete flexion, and extension until it reaches the position you left it in, and there it suddenly stops. There is ligamentous union with separation of the fragments about one-fourth of an inch when extended, and nearly one-half inch when flexed. I do not believe I can improve the condition of the arm, particularly as the man, I think, will not cooperate; I have recommended his discharge."

This man's arm, as previously noted, could not be completely extended before the injury, and immediately after the injury forced extension would not bring the forearm straight. The arm was dressed, however, as nearly extended as the previous condition of things would permit, the amount of flexion being not more than ten degrees. It was in this position, then, that it was fixed.

I doubt if Major Waters was aware of the previous inability to completely extend the forearm, and perhaps the imperfect extension to which he alludes may be no more than that which was normally present, as a result of the man's former occupation.

Reviewing this case, and the literature of like cases, it seems that the result, while not wholly satisfactory, was as good as is attained in the majority of these cases. It is still a disputed point as to how such fractures should be treated.

Much has been said as to the position in which to fix the arm; many surgeons advise complete extension, but the majority of modern authorities seem to prefer slight flexion.

Hooks for holding the fragments in apposition have been advocated by some, and operations have been performed with success, suturing the fragments with wire, osseous union following; it is claimed by the advocates of this latter method that antiseptic precautions make the operation devoid of danger. It seems, however, that by a careful adaptation of some simple apparatus the good result usually obtained would render the substitution of more severe measures unjustifiable.

The Charlotte Medical Journal, without malice or evil intent, says of the *New York Polyclinic*, that "the Professors of the Polyclinic constitute its corpse of editors."

ANGIO-NEUROTIC EDEMA: A REPORT OF THREE CASES SHOWING SOME INTERESTING MANIFESTATIONS.

BY THOMAS G. ASHTON, M.D.,

DEMONSTRATOR OF CLINICAL MEDICINE IN JEFFERSON MEDICAL COLLEGE.

THAT our knowledge of angio-neurotic edema is as yet in the early stages of its development is my reason for reporting the following typical cases of the affection, as it is only by the grouping together of different examples of a disease, and the critical study and comparison of its causes and manifestations, that an accurate idea of its nature can be arrived at.

CASE I.—W. E., aged fourteen, a school-boy, whose previous history includes the ordinary diseases of childhood and is otherwise negative, with the exception that at the age of two he suffered from an attack of infantile paralysis involving the extremities of the left side.

When seen for the first time, about the middle of November, 1892, except for the palsy and atrophy of the muscles of the left leg and arm, he bore every evidence of being in the best of health otherwise than as relating to the condition about to be described.

Upon the previous day he had a fall, striking upon the tissues in the neighborhood of the right eye; the resulting swelling was only slight, the contusion being moderate in degree. Upon the evening of the following day there appeared with great suddenness a swelling of the tissues surrounding the right eye and nose. This was unattended by any subjective phenomena other than a sense of awkwardness of the parts. The swelling was of extraordinary pallor, translucent in appearance, and pitted slightly upon pressure; the pitting, however, being very evanescent. This condition lasted until the morning of the fifth day, when the whole process suddenly terminated.

Upon the evening of the same day as that upon which the lesion disappeared from the region of the right eye, and without any apparent cause, the same condition suddenly developed in the tissues surrounding the left eye. This second attack was attended with the same manifestations as characterized the occurrence of the affection of the other eye. It continued in the neighborhood of the left eye for two days, and then suddenly disappeared.

There were no manifestations of digestive derangement suggesting an involvement of the gastric mucous membrane, and examinations of the urine gave negative results.

CASE II.—Miss DeH., aged eighteen, is the subject of a marked tuberculous diathesis, and for several years before the development of symptoms of angio-neurotic edema had been under treatment for tuberculosis of the cervical lymphatic glands, some of which required surgical interference.

In July of 1892 the patient entered a street-car in an overheated condition, and seated herself beside an open window. She felt the draught and remarked a sudden chilling of the surface of the face. Almost coincidently with this the face began to swell, with an accompanying sensation of great itching and burning, or, as she herself expressed it, "scalding." The swelling was of enormous proportions, involving the entire right side of the face, and completely closing the right eye; it was

pale-pink in color, resistant to the touch, and pitted scarcely at all upon pressure. When seen the next day the patient presented no evidence whatever of the affection, the lesions having disappeared during the night.

A second attack occurred three weeks later, in which the tissues of both sides of the face were involved. This attack was so severe that both eyes were completely closed, obliging the patient to remain confined to the house. A sudden chilling of the surface of the face while sitting at an open window, the patient at the time being in a state of perspiration, was the cause of this attack; after continuing for three days the phenomena disappeared.

The third attack occurred a few weeks subsequently to the second, and, as previously, followed sudden cooling of the surface. It involved the right side of the face, and after lasting for two days the lesion migrated to the conjunctiva of the right eye, which swelled with great rapidity. The entire conjunctiva of the eye was affected, so that vision was almost completely obscured, and the appearance of the eye resembled that of a large blister, except that the color was of a bright red, owing to the suffusion of the vessels. The swelling was so great that the patient was unable to approximate the eyelids, and was attended with great suffering. After about twenty minutes of these severe symptoms the swelling of the conjunctiva suddenly departed, leaving the eye injected and sensitive. The lesion upon the face continued for three days longer.

The patient has had two attacks of the disease since, both upon the face, the last occurring about six weeks previously to the present writing. During each of the attacks the patient suffered from digestive derangement, as manifested by nausea, anorexia, constipation, which disappeared with the departure of the lesion.

CASE III.—M. A., aged twenty, female, with negative history. During the month of January, 1893, after exposure to a cold wind, a sudden swelling appeared in the parts around the right eye. The swelling was attended by a sensation of considerable burning, and was not influenced by pressure. In about three hours after the appearance of the lesion upon the face a copious eruption of herpes occurred upon the right side of the scalp. The edema rapidly subsided after a duration of three days, but the eruption of herpes continued for four days longer. There has been no recurrence of the affection.

Among the interesting points in the histories of these cases are the causes exciting the attacks. It is stated that the two most frequent exciting causes of the attacks are traumatism and exposure to cold, either exposure to a low temperature or sudden cooling of the surface after being overheated. In Case I the exciting cause of the first attack was clearly the traumatism; in Cases II and III, sudden chilling of the surface undoubtedly bore a causative relation to the occurrence of the seizures.

The most remarkable fact in regard to Case II was the involvement of the conjunctiva, and as regards this phenomenon I believe the case to be unique, as, after an extended search through the literature upon the subject, I have been unable to find a record of the occurrence of the lesion upon this mucous membrane.

It is somewhat singular that in Case III the occurrence of the herpes upon the scalp should have been

coincident with the lesion of angio-neurotic edema of the face of the same side. Though there may have been some connection between the two conditions, I am disposed to look upon their simultaneous occurrence as being rather a coincidence, as the patient several years previously suffered from a similar attack of herpes of the scalp.

In other respects the foregoing cases do not differ from many of those already reported. A history of heredity could not be established in any of them, although in many instances heredity is shown by Osler and others to be an important predisposing factor.

The typical appearance of the lesion—in Case I, its extreme pallor, in the others its peculiar lusterless rose-red—corresponds exactly with the description of the lesion as given by Collins, of New York, in a recent article upon the subject. The suddenness with which the disease manifested itself, and the peculiar sensation of stiffness and awkwardness in one instance, and that of itching and scalding during the development of the lesion in the other two, make, together with its color and the suddenness of its departure, the clinical picture of the disease almost complete.

NEW DEVICE.

A MODIFICATION OF GOTTSTEIN'S CURETTE.

BY G. HUDSON MAKUEN, M.D.,
OF PHILADELPHIA.

A SHORT time ago one of our medical journals published a new (?) method of removing foreign bodies from the ear, and upon investigation it was found that this same method had been published seventeen times before, and had been practised as far back as the time of Solomon.

This fact, and similar ones, make one hesitate to claim priority, and doubt whether there really is anything new under the sun.

In September, 1892, there was described in the *New York Medical Record* a modification of the cutting portion of the Gottstein curette. While this number of the journal was yet in process of printing my instrument was in the hands of the maker, undergoing the very modification therein described, and upon looking the matter up, it was found that Dr. Huguet, of Paris, described the same heart-shaped modification of the curette in November, 1891.

This instrument has become very popular, and deservedly so, among rhino-pharyngeal surgeons, and I venture to describe a little change in the shape of the distal end of the handle which I think greatly enhances its convenience and usefulness.

The accompanying cuts show the original and the modified handle, and incidentally the original and modified blade.

The handle in Fig. 1 is of metal, smooth and pointed, with nothing to prevent it slipping in the hand during the upward pressure required, and thus allowing the blade to glide over a portion of the tissue to be removed, and with nothing to prevent its turning in the hand, and thus doing serious injury to the orifices of the Eustachian tubes.

The modified handle, shown in Fig. 2, is made of hard rubber, with a fourchette at the end which fits snugly into the fourchette between the thumb and index finger, enabling the operator to control the instrument

FIG. 1.



FIG. 2.



perfectly—an important thing in any operation, but doubly so here, where the cutting portion is out of the line of vision and in close proximity to sensitive and delicate structures.

MEDICAL PROGRESS.

Cholecystitis Simulating Intestinal Obstruction.—LANE (*Lancet*, No. 3626, p. 411) has reported the case of a man, fifty-four years old, who, while drinking a glass of lemonade at the conclusion of a rather hearty supper, was seized with sudden and severe pain in the abdomen. Eight years and three years previously there had been similar attacks. On neither occasion was there jaundice or pain in the region of the liver or gall-bladder. The pain continued for some time, and was accompanied by frequent vomiting. The abdomen became distended, distention and pain being the more decided upon the right side. The bowels were constipated. After the lapse of a few days the man became quite prostrate, with a small, rapid pulse and a distended, painful, and tender abdomen, hardness and fulness being most distinct in the right hypochondrium. The cecum and the small intestine were greatly distended, but there was no sign of distention of the colon to the left of the middle line. It was concluded that there was some obstruction of the large intestine immediately beyond the hepatic flexure. On opening the peritoneal cavity in this situa-

tion a thick layer of firm lymph was found covering the edge of the liver and extending down over the adjacent transverse colon. Beyond this point the colon was empty, while the ascending colon was much distended. On removing the lymph from the transverse colon the duodenum was found immediately beneath and covered with a similar layer of inflammatory material. In relation with both duodenum and transverse colon, and likewise covered with a deposit of lymph, lay the tensely distended, livid, and evidently acutely inflamed gall-bladder. The lymph was removed. After the thick muco-purulent contents of the gall-bladder were removed, the opening was enlarged and its margins sutured to the peritoneum, and a drainage-tube introduced and fixed in position. No stone was found, and the condition of the patient forbade prolonged search. There were considerable restlessness and delirium for some time after the operation. The bowels acted freely within twelve hours. The man gradually progressed to complete recovery, though for a considerable time mucus continued to escape from the fistula that remained.

Excision of the Lower Jaw for Malignant Disease.—NANCREDE (*Annals of Surgery*, xvii, 3, p. 295) has reported the case of a man, thirty-three years old, who for eight months had observed a small, bony growth, as large as a small pea, on the portion of the inferior border of the lower jaw related to the first true molar tooth. The extraction of two teeth was followed by the development of a fungating mass, springing from the alveoli of these teeth, with rapid increase in size of the jaw from the angle almost to the symphysis. A free, offensive discharge took place, and the man failed greatly in strength. The right ramus, with the corresponding portion of the body of the jaw, extending somewhat to the left of the symphysis, was removed. In the course of six or seven weeks the growth recurred, and the remaining portion of the jaw was exarticulated and the floor of the mouth freely dissected away. In the course of two months recurrence had again taken place. It being feared that both the superficial and the deep carotid arteries were involved in the growth, a ligature was passed around the common carotid above the omo-hyoid muscle, but not tightened. After two hours of tedious dissection, the growth, which was attached to the sheath of the deep vessels for a distance of two inches, was removed. It was not known whether or not the external carotid artery was ligated, but it was believed to have been tied in the wound. Recovery took place without a bad symptom.

It is recommended that in cases of primary malignant neoplasm of the lower jaw, at least half of the bone, including the ramus, should be removed, together, if possible, with every vestige of the periosteum. As experience has taught that in cases of sarcoma of the long bones amputation in continuity rarely succeeds, total excision of the lower jaw is to be preferred when the disease extends along the body much anteriorly to the angle. On account of the ease and safety afforded it is advisable to divide the lower lip in the median line; the resultant cicatrix gives rise to little or no deformity. There should be neither hesitation nor delay in the removal of recurrent growths, as these almost always originate from fragments of periosteum left behind or in the attachments of the maxillary muscles.

The Treatment of Severe Club-foot.—WALSHAM (*British Medical Journal*, No. 1677, p. 339) maintains that, in the treatment of severe cases of club-foot in the infant, the aim should be to act on the bones rather than merely to stretch or divide the soft structures on the inner side of the foot. To accomplish this object the varus defect must not be too quickly overcome. When the varus is cured, the foot should, if possible, be carried at once, after division of the tendo Achillis, beyond a right angle with the leg, there being no danger of non-union of the tendon; if the foot cannot be brought up to or beyond a right angle, the failure is not, as a rule, dependent upon contraction of the posterior ligaments or upon partial tilting of the astragalus out of its socket, but upon a downward deflection of the neck of the astragalus. Attempts to overcome this deflection are best directed to the bone rather than to division of the posterior ligaments or soft structures of the sole of the foot. In exceptional cases, even in the infant, it may be prognosticated from the first that neither the varus nor the equinus will be thoroughly overcome without an operation upon the bone. For such cases, after all gentler means have been faithfully tried, and for confirmed cases in older children, astragalectomy, with, if necessary, the removal of a further portion or portions of the tarsal bones, is on the whole the best operation.

The Dangers of Rubber taken into the Mouth.—In a contribution from the Department of Hygiene at the Imperial University of Moscow, ALEXANDER BULOWSKY (*Arch. f. Hygiene*, vol. xv, No. 2) presents some facts in reference to the possible injurious qualities of rubber articles, such as teething rings and nipples. His important conclusions are as follows:

Rubber articles that float in water and are elastic and soft are harmless.

Black rubber dolls that are colored throughout the mass, and the material of which sinks in water, contain lead and are dangerous.

Red and brown rubbers contain antimonious sulphid, and when colored throughout the mass are not dangerous, as the antimony does not dissolve in the saliva or in milk.

Gray rubber contains zinc oxid, and is dangerous in any articles likely to be put into the mouth.

Rubber articles colored on the surface only are unsafe.

THERAPEUTIC NOTES.

Epithelioma of the Tongue Cured by Electrolysis.—DRAISPUL (*The Journal of Laryngology, etc.*, vii, 2, p. 66) has reported the case of a man, twenty-five years old, who presented evidences of pulmonary tuberculosis and an effusion of fluid into the left pleural cavity and an ulcer upon the right margin of the tongue. The base of the ulcer was somewhat excavated and covered with a grayish deposit; the margins were infiltrated and undermined. Several glands on the right side of the neck were enlarged. As between the galvano-cautery and electrolysis, the latter was preferred on account of the painlessness of its application, the slight reaction to which it gives rise, and the greater permanency of the therapeutic result. Microscopic examination of sections of a piece of tissue removed disclosed the histologic appearances of an epithelioma. The destruction was

accomplished by means of a steel needle connected with the negative pole, a current of ten milliamperes being employed for ten minutes. The full destruction was accomplished in six sittings at intervals of three or four days. Two small nodules that formed upon the tongue were treated with the cautery, but ulceration took place at the site of cauterization, and electrolysis also proved successful in the removal of this.

Terpene Hydrate for Bronchial Catarrh.—MURRELL (*British Medical Journal*, No. 1679, p. 457) emphasizes the value of terpene hydrate in the treatment of affections of the bronchial and nasal mucous membrane. The drug is prepared by treating oil of turpentine with nitric acid and alcohol. It is a solid and has somewhat the appearance of chloral hydrate. It has a faint odor resembling that of pure terebene. It is practically insoluble in water, but it may be prescribed in the form of an elixir, five grains being added to a half-ounce made up with simple elixir and flavored with tincture of Virginian prune and syrup of tar or with aqua laurocerasi. For those that cannot take sugar the elixir may be made with saccharin. Terpene not only relieves cough and lessens bronchial secretion, but it also is a distinct diuretic, and has been used with benefit in neuralgia.

For Malaria.—COHEN (*The Philadelphia Polyclinic*, ii, p. 66) reports remarkable therapeutic results from the employment of the double hydrochlorate of quinine and urea in the treatment of malarial fever. Ten or fifteen grains of the drug, dissolved in from twenty to thirty minims of boiled water, are injected subcutaneously. Unless the paroxysms recur with greater frequency, but three injections are given in the first seven days and two during the second. Subsequently, arsenic, in one form or another, is given for two or three weeks. In making the injections the needle should be inserted deeply; the syringe should be entirely empty before it is withdrawn, and the point of puncture should be painted with tincture of iodine.

A New Method of Administering Medicines.—CONDAMIN (*Lyon Medical*, t. lxxii, No. 11, p. 363) describes a mode of administering medicines that he has for six years employed with satisfactory results. It is necessary that the medicament be sufficiently soluble in water in order that the requisite dose may not exceed the volume of a fluid-dram. By means of a rubber catheter or a suitable canula provided with an olivary extremity, the fluid is introduced into the rectum. Absorption is not quite as rapid as when the administration is hypodermatic, but the physiologic effect persists longer, and there is no pain and no risk of abscess-formation; and the rectum is quite tolerant of the procedure.

A Diuretic and Heart Tonic.—

R.—Juniperi	℥xij.
Potass. acetat.	℥viiij.
Pulv. digitalis	℥ij.
Pulv. scillæ	℥ij.
Vini albi	Oviij.
Spt. vini rectificat.	Oj.—M

S.—A dessertspoonful at a dose.

The Practitioner.

THE MEDICAL NEWS.

A WEEKLY JOURNAL
OF MEDICAL SCIENCE.

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SATURDAY, APRIL 8, 1893.

OUR PREPARATIONS FOR CHOLERA.

CONSCIENCE-SMITTEN with the knowledge that as cities and as a nation we were in the most wretched state of ill-preparedness for an epidemic of cholera should it develop in our midst, we frantically demanded of our General Government that it should keep the contagion away from our shores. We have given legislative authority to establish a quarantine-service, the means, methods, and machinery of which we imagined could be called into effective action in the space of a month or two. Having done this, the people slipped back into a delusional dream of safety, leaving our Boards of Health to drone on in customary do-nothingism, allowing our streets and alleys to fill with filth, and continuing to drink our beloved diluted sewage.

Out of this belief in safety, Medicine now calls the people, and warns that there must be a municipal and national house-cleaning; that, despite all quarantine, the possible epidemic is probable, and that at last the only safety lies in internal health and sanitation—in an ability to deal with cases of cholera wherever and whenever they arise within the country. This ability cannot exist without a purified water-supply, clean cities, and an everywhere-existing machinery of local medical policing, that, to speak plainly, nowhere exists.

Where the medical warning was most clearly needed, there fortunately it was most clearly made, and there is now a clumsy vigor that, in its operabouffe character, makes us blush scarlet for our civilization. The spectacle now presented in New York and in the Croton watershed—the DALY raid—will long remain in future annals as one past wonder and belief. In a spasm of fright and awkwardness the city is to pay millions of dollars, without at all surely and completely securing what she seeks and needs. It is commonly agreed that this clownish and brutal method of purifying the Croton water-supply will not certainly purify it, and will have no result in limiting its function as a disseminator of cholera-germs if they come amongst us.

The significance of the farce lies in the proof it gives that we are at last awakening to some comprehension of the awful condition of our national hygiene. Disease, with the instinct of self-preservation and the fear of death, may serve to awaken in our people a knowledge of the need of cleanliness, of the interdependence of each upon all. What we would not do for decency's sake we are spurred to do for life's sake; what we would not do willingly we are forced to do by the power of law, and for our own health. It was a remarkable thing, one repeatedly noted in the Croton towns, that the inhabitants actually laughed at the idea that they should care to keep their filth out of the drinking-water of a million people living a few miles down stream.

The energy of the rest of the American people seems to have expended itself in a lazy confidence in the exclusion-policy given over to the *deus ex machina* of the National quarantine-service, and to an amused news-mongering about New York's medico-political comic-opera plight. In Philadelphia our purlieus, back-alleys, and slums, are certainly not in good condition, and we are resignedly happy not only to drink the sewage-water of several hundred thousand people; but of the water within a few miles of the city, and, even within the city limits, no effort is made to stop a further contamination, suspected of being quite as bad as necessary. Our local medical societies and Board of Health should secure an exhaustive examination of the water-supply of Philadelphia, similar to that undertaken by the New York Academy of Medicine.

It is not different in most other cities. In Chicago, spurred by the fact that the entire success of the Exposition depends upon the sanitary condition of the city, the energetic work of prepa-

ration has, as shown in another column, been able to reduce the death-rate to a great and praiseworthy degree. This proves what may be done with interest and determination. The same reduction in other cities is perfectly possible, and is demanded by every consideration of humanity and prudence. What earthly need is there that the death rate of New York should be 25 per cent. higher than that of Chicago? Drainage, etc., considered, the reverse should be the case. The fact proves that about 10,000 people die unnecessarily—are, in fact, murdered in New York every year.

Out of this death-inviting indifference it is the duty of the medical profession, through every one of its members, to arouse the people. In a simple commercial light, should a single case of cholera occur in Chicago during this year, it would be a national financial calamity, in comparison with which any expense of prophylaxis would be trivial. The local Boards of Health should everywhere be spurred to action, isolating-hospitals should be made ready, and the mechanisms, financial, official, and medical, for every contingency prepared.

At our ports of entry it is especially necessary that the preparations be most clear and effective. Medical societies, Boards of Health, and citizens' committees should at once unite and examine into the questions of water-supply, sewage-disposal, street and slum cleansing, and all such matters. What officials are there, what machinery exists, and what public money is at disposal, for the discovery, segregation, and care of one, of a hundred, or of a thousand cases of cholera, should they suddenly appear?

But it is not only our seaport cities that need to be guarded. It is already plain that, fearful of our more stringent quarantine-regulations, immigration is being deflected to Canadian ports, and that, if negligent of the Canadian frontier, infection may slip into our homes by this "back door" whilst we are effectually guarding the front.

Inland cities and towns should also be made ready. Wherever an immigrant's trunk is unpacked there may be sown the seeds of disease and calamity.

We should also note well that the probable source of much of our immigration-material is to be profoundly suspected. The tyranny of Russia has reduced her people to a destitution wherein they are an easy prey to disease, and it is believed that she is concealing much of the truth as to the cholera and her internal condition. The cholera has not

been suppressed in many parts of Russia despite the intense cold and the presence of snow. According to a recent report of the *Regierungs-Anzeiger*, the disease prevails in 14 Russian "governments." From December 28, 1892, to January 16, 1893, there were in Podolia 586 cases and 196 deaths; in Kiev from December 28, 1892, to January 24, 1893, 144 cases and 44 deaths. When, with warmer weather, the conditions of travel and of germ-development become more favorable, all the possible rigors of quarantine can hardly prevent sporadic cases, at least, arising within our borders, and every means of meeting the danger should be well provided for in advance. We are, indeed, forewarned, but we are far from forearmed. The care of the public health must be taken out of the hands of ward politicians and put into the keeping of men who are fitted by study, by experience, and by morality to solve the tremendous problems of the prevention and cure of disease. The mechanisms and methods of such solutions must be permanent; they cannot be created in a few days by a panic-stricken populace or by bouffe politicians, but they are the products only of many years of virile and conscientious intelligence. When the present danger has passed, the permanent danger of the future will then be present.

THE SANITARY CONDITION OF CHICAGO.

Two years ago Chicago decided that one of her chief duties as regards the World's Fair was to be able to offer a clean healthy abode to the great number of strangers who anticipated visiting her. At that time her annual death-rate was not particularly high, being 22.7 for the year 1891, but there was a moderate epidemic of typhoid fever, which was sufficient to create considerable discussion in the newspapers and to cause some dire forebodings.

Careful inspection showed that the difficulty was with the lake water, which formed the greater part of the drinking-water in the city. The crib from which the main supply came was two miles from shore, but a certain amount of the less pure surface-water was admitted. Measures were at once begun to rectify this evil, and pending the completion of these measures, the public was taught, through the press, the advisability of purifying the drinking-water by sterilizing with heat, or by filtering. The old crib was quickly repaired, and the completion of the new tunnel was hastened. The new tunnel is nearly

two miles from the older one, and extends four miles into the lake.

At the same time other improvements have been made in the sewage system. The Chicago River has been made to flow more constantly opposite to its normal direction into the lake, and it carries with it much of the city sewage into the Illinois River. Although at certain times, especially when the rapidly melting ice floods the river in early spring, the river does flow into the lake, and although a certain amount of sewage is emptied into the lake at other points, still the great distance of the source of supply and the exclusion of the surface-water greatly lessen the danger, if, for the present at least, they do not reduce it to a minimum.

These changes, as well as other sanitary measures taken by the Health Department, have had their effect. Thanks to the kindness of the Bureau of Health, we are able to give a few statistics, although the annual report is not yet printed. The mortality for the year 1892 in Chicago, reckoning from the population given by the School Census of last May, was only 18.2 in a thousand. This is 20 per cent. less than that of the year 1891, and compares favorably with the mortality of any of the large cities of the world. It is considerably below that of the largest American cities. For example: In Philadelphia it was 21.1; in Brooklyn, 21.9; in Baltimore, 23.2; in Boston, 23.9; and in New York it was 24.0.

In some of our other cities it was even higher. To show that this favorable rate is still keeping up, it may be added that a comparison of the death-rates of New York and Chicago for the week ending March 18th shows 30.6 for New York and 18.4 for Chicago.

These figures are alone sufficient to prove that on the ground of general sanitary conditions Chicago is in a good condition to receive and care for visitors to the Fair.

Besides the general healthiness of the place there is another consideration. In any large concourse of people from all quarters of the globe, there is always the chance of an epidemic. The three diseases most likely to cause such a disturbance are typhoid fever, smallpox, and cholera.

There need be little anxiety felt regarding typhoid fever, for it seems to be well under control at the present time. It was not until last November that the new four-mile tunnel was used, and its effect is very apparent. We quote the number of

deaths from typhoid for the past six months and for the corresponding months of the previous year:

	1891.	1892.	1892.	1893.
September,	190	138	January,	41
October,	171	92	February	30
November,	150	67		
December,	186	47		

The drinking-water has been analyzed repeatedly by PROF. W. S. HAINES, and he reports the most gratifying improvement, especially since the opening of the new tunnel. There has been a great diminution, not only of the albuminous ammoniates and the chlorids, but also in the number of microbes to the cubic centimeter. In spite of the purity of the drinking-water the public is still quite generally sterilizing it, or using PASTEUR filters; and the hotels and restaurants are almost all adopting this plan.

In the World's Fair grounds, on every corner, even to-day, are supplies of free sterilized water; but in addition to the general water-supply, the Waukesha spring water has been introduced into the grounds through ninety miles of pipes. The Waukesha supply consists of three springs, with a daily outflow of two million gallons, and the examination shows that it possesses great purity. In fact, the number of microbes to the cubic centimeter is less than ten, which is a very high grade of purity. This water will be given free in many of the buildings, while in other places the moderate charge of one cent a glass will be made for it.

The systematic thoroughness of the Health Department of the City will, it is believed, be a sufficient proof against a smallpox epidemic. During the year 1892 there were only five smallpox cases, with one death. It is the custom of the Department to examine any doubtful case immediately, and if found to be a genuine case of smallpox, the instant removal of the case to the pest-house is followed by the vaccination of all the people in the vicinity to the number of several hundred. In this way the disease is prevented from spreading; and for a long time there have not been two cases in the same vicinity. This, of course, is entirely apart from the compulsory vaccination of school-children, which is also practised.

Probably everybody has silently asked himself what would become of the Fair if the cholera invaded Chicago this summer; and it is believed that the question will never be answered by facts. The details of Chicago's individual work in guarding against cholera must of course depend upon the

thoroughness of the work of the quarantine-stations on the coast, and upon the general trend of the disease itself. At present Chicago has contented herself with perfecting the general sanitary conditions, and with the maintenance of the same rules of inspection and quarantine which were so effective last year. But she holds herself in readiness to supplement any laxity at the coast with still more stringent local measures.

It is not denied that danger exists, and that sewage is to some extent flowing into the lake. The greater dilution required for contamination of the water-supply through the four-mile tunnel does not guarantee asepticity, and no relapse of vigilance must be allowed.

It is, of course, a great safeguard, locally considered, that, in addition to the coast-inspection, there are also other cities through which the immigrants must pass before arriving at Chicago, and whose inspection they must undergo; but, in spite of this, we are assured that the local inspection will be rigidly carried out.

It might be well to add that the Health Department has prepared, in case of necessity, for the isolation of a considerable number of patients by means of tents, which, with the flooring already complete, can, if needed, be erected at short notice, and will be sufficient until others can be obtained.

EDITORIAL COMMENTS.

The Proposed Constitution and By-laws of the American Medical Association.—As offered to its readers in the *Journal of the American Medical Association* of April 1st, we find some difficulty in understanding the publication. It is presented as an editorial, which it evidently is not; no explanation of the work is given; it is not signed by anybody; no distinction between constitution and by-laws is made; and, unless thoroughly acquainted with the Association's action in these matters, one could no more than guess that the document is the report of a committee (appointed in June, 1892) formulating and proposing to the Association a constitution and by-laws which are to be acted on at the next meeting of the Association. These matters should have been made clear.

Membership is limited to those who are members in good standing in the several affiliated State medical societies and who shall subscribe for the *Journal*. "All societies that reject the code of ethics of the American Medical Association, or intentionally violate or disregard any article of the same, are thereby and of their own choice debarred from membership." The code of ethics proposed is to be published later, and judgment of the committee's work must therefore be postponed until this important conclusion is made public.

"Allopathic Czar Parties."—A method of bringing about the medical millennium is advocated in a circular before us, and addressed: *Dear Devotee of Constitutional Liberty*. "Allopathic Czars," seems to be a tirade against regular or rational medicine, and is vouched for as being "uproariously funny," which is doubtless more true than the authors suspect. We cannot forbear quotation:

"The next page explains the origin and utility of 'Allopathic Czar Parties.' They are potent and popular educational entertainments—admirable first steps toward a Local Liberty League—leading to a Chautauqua-like course of studious reading. We appeal to you to send stamps for one or more copies of 'Allopathic Czars,' and invite a score of neighbors in to enjoy the fun. At the close, when everyone is in a rollicking good humor and full of enthusiasm, appoint another meeting and take a five or ten cent collection for our entire League Library; price only \$1.00—less than cost.

"Hoping to hear favorably and frequently from you, we remain yours for Health, Humanity and Constitutional Liberty."

Where does the money come from to support this remarkable crusade?

"Friends of Medical Freedom."—In Ohio there is a bill pending in the Legislature, a very mild one, as may be supposed, which allows physicians, homeopaths, and eclectics representation in a proposed State Board of Medical Examiners. But it excludes clairvoyants, manupaths, wizard kings of pain, and all of this kidney from the practice of medicine—because such could hardly pass the necessary medical examination. But these have the powerful aid of the "National Constitutional Liberty League of Boston," of which Prof. J. Rodes Buchanan, M.D., and J. Winfield Scott stand as the official figureheads. Circulars and petitions are being lavishly sown over the State by the League, vilifying the "monstrous law" in proper vitriolic language. These circulars begin, *Dear Friend of Freedom*, and appeal to the friends of "medical liberty," and against the "maintenance of medical monopoly," all in the stirring tones of the spirit of '76. It will be remembered that last year the Ohio Legislature voted down a law similar to the one now proposed, with howls and cacchinations of derision, and then proceeded to vote the people's money for a trial of Keeleyism. It is said that railroads and printing-presses have been introduced into Ohio.

Concealment of Vital Statistics.—A bill is now before the New York State Legislature, the purport of which is to keep the health-department records secret. The reasons given for the measure is that many facts about births, deaths, etc., are of a private and personal nature (alcoholism, insanity, etc.); that in many marriages secrecy is desired; that blackmailing is fostered by the publication of some facts; that families suffer from proclamation of the existence of cases of contagious disease, and many other equally specious excuses. It is urged that data will be and are concealed because of publicity, and that, therefore, the existing statistics are erroneous. The importance of accurate statistics to the community is doubtless great, and because it is great the records should be public records and not private records. The vitiation of returns will surely be greater with secrecy, and in case of epidemics the suspicion of concealment

would work more injury than the frankest publicity. In spirit, the movement is as decidedly un-American as it is unscientific.

Professional Amenities.—The President of the Arkansas State Medical Society, in response to a request, gave a list of regular physicians in good standing in the Medical Society of Hot Springs. Some names were inadvertently omitted, which were subsequently supplied. One of the omitted ones, in ignorance of the voluntary reparation of the error, thereupon prints a letter wherein the *suaviter in modo* is somewhat less conspicuous than the *fortiter in re*. For example: "This specimen of physical and moral turpitude, this professional hybrid, with the soul of a snake, the heart of a jackal, the brains and propensities of an ass—this upstart president of the State Society . . . the worst charlatan in Hot Springs, in point of impudence and mendacity . . . for originality of method and black arts in misleading the public, would prove a Derby winner in the chamber of horrors of hell, etc." Is there something in the waters of Hot Springs that generates hot wrath and mixed metaphors, or is the climate at fault?

Physio-Medical Grammar and Therapeutics.—A recent number of the *Physio-Medical Journal* has a letter from a valued contributor describing his success with lobelia. It seems to be almost his sole reliance in all diseases. "The cases where this herb is not indicated down here is indeed few." He is so fond of it that he lovingly calls it "old rooter." A father wished "the gums of his nursing child incised in order to let them through easier." The lobelia emetic was given to the mother instead, but upon her it had no effect, but straightway the child "ejected a large round worm with some other debris." "It is needless to say to a physio-medicalist that both mother and child recovered rapidly." In a case of strangulated hernia the infusion of "old rooter" was equally successful. On the second day "I seen the flush of the face was not so purple." "In parturition, in cramp-colic, etc., it also done the work" perfectly. These, editor and contributor, are the men that hate "Allopathic Czars" and control medical legislation!

Medical Legislation in Pennsylvania.—We may feel a pang of sincere regret that, in the enlightened Commonwealth of Pennsylvania, it has seemed necessary to believe that there may be more than one kind of *physician*—in a word, that a true physician can be either "old school," "new school," "no school," allopathic, homeopathic, isopathic, eclectic, or Thomsonian. We must concede, however, that notwithstanding the perpetuation of this delusion, it is nevertheless a great advance to have placed under control of the State the authority for granting the privilege of engaging in medical practice. We, therefore, have much satisfaction in recording the fact that on Tuesday, April 4th, there was finally passed by the Legislature of the State of Pennsylvania a bill establishing a Medical Council and three State Boards of Medical Examiners. The members of the boards are to be appointed by the Governor from certified lists of the members of the several medical societies, and each board will examine the candidates in its own "school."

Applicants must have studied medicine for at least four years. The work of the Boards of Examiners is to be supervised by a Medical Council, to consist of the Lieutenant-Governor, the Secretary of Internal Affairs, the Superintendent of the State Board of Health, together with the Presidents of the three Examining Boards.

Preliminary Qualifications Necessary.—The De Kalb County Medical Society of Alabama demands that no application for the examination of those desiring to practise medicine in the county shall be received without satisfactory evidence having been given that the applicant has preliminary qualifications, according to law. The animus of the resolution is against the proprietary medical colleges requiring no entrance examinations, or in which such examinations are shams, and which graduate ill-fitted men. Let every medical society in the country take such a firm stand.

Judges Also!—A correspondent writes us concerning a judge who is in the habit of remitting all fines against drunkards on condition that they will at once take the Keeley treatment. This strikes one as being neither good law nor good gospel. In preaching that "drunkenness is a disease," physicians are finding that there is a popular exegesis of the doctrine as vicious as the theory is untruthful. Even if the theory were admitted, there is a decidedly ethical aspect to the question: How was the "disease" produced? This aspect the Keeley-omaniac preachers and judges utterly forget.

"The Medical and Surgical Exhibit" of the Association, if the committee's recommendation is accepted, will not henceforth be "under the authority or recognition of the Association." This is certainly a move in the right direction, although it will doubtless not have the full effect aimed at.

CORRESPONDENCE.

DR. FREIRE'S YELLOW-FEVER INOCULATIONS.

To the Editor of THE MEDICAL NEWS,

SIR: I have just read the letter of Dr. J. McFadden Gaston, published in THE MEDICAL NEWS of March 25th (p. 335). I have fully exposed Dr. Freire's statistical methods in my *Report upon the Prevention of Yellow Fever by Inoculation*, published in 1888, and cannot occupy your valuable space with a reiteration of the facts that led me to the conclusion that Dr. Freire's inoculations have no prophylactic value. But I call your attention to the fact that in 1885 Dr. Freire practised 3051 "inoculations," and in 1886, 3473, while in 1891-92 the number, as given in Dr. Gaston's letter, was only 1000, and of these, but 818 were inoculated in the city of Rio. I infer, therefore, that the method is not gaining ground in the city where it originated, although the yellow fever mortality in this city was greater in 1891-92 than in any previous year since Dr. Freire commenced making his inoculations. In 1884 the mortality was 618; in 1885, 278; in 1886, 1397; while in 1891-92 we are told that it

was 4000. As only 818 inoculations were practised during this epidemic year, it is evident that the method is not gaining in popularity, and that the members of the medical profession in that city are not convinced of its utility.

In his latest published statistics Dr. Freire again includes all of his previous "vaccinations," and gives a total of 11,881, with a mortality of 0.5 per cent. One or two extracts from my published report will show the fallacy of these statistics. Referring to the year 1885, I say:

"Dr. Freire has omitted to state one very important fact with reference to vaccinations practised during the period included in this tabular statement. The date of the vaccinations is not given. Fortunately, I am able to supply this omission from his journal containing the names of the vaccinated, which he kindly placed in my hands during my stay in Rio. I find from this record that the inoculations were practised as follows:

January	392
February	342
March	611
April	139
May	273
June	813
July	481

"Now, it is well known that June and July are months during which yellow fever does not prevail in Rio, and that, in fact, the month of May furnishes as a rule but few cases. But Dr. Freire has included in his list 1294 persons who were vaccinated during the healthy winter months of June and July, and who presumably were exposed during the preceding comparatively unhealthy months of January, February, March, and April. If these 1294 individuals were protected from an attack of yellow fever by the inoculation practised in June or July, what protected them from being attacked during the preceding epidemic season?"

Referring to the year 1886, I say: "Taking all of the vaccinated for the two years, and without making any allowance for the considerable number of persons who had, no doubt, left the city before the epidemic of 1886 occurred, Dr. Freire, with a total of 6524 vaccinated and a total of eight deaths, makes the proportion 1 per 1000. Reference to Dr. Freire's manuscript journals shows that of the total number vaccinated during the two years, 4465 were vaccinated prior to the epidemic of 1866—that is to say, before the 1st of January, 1886. How many of these left the city before the outbreak of the epidemic, how many were only temporarily in the city when vaccinated, how many died from other diseases, I cannot say; but it is a significant fact that, of the 3051 vaccinated prior to August, 1885, Dr. Freire has only one fatal case to report, while out of 460 vaccinated in January and February, 1886, he reports five deaths, a mortality of more than 1 per cent., which he gives as the general mortality among the non-vaccinated. This, however, is not apparent from Dr. Freire's own statement of the case, but is nevertheless true, as I shall proceed to show. In his report, which we have just given in full, he does not give the date of the vaccination of these individuals, but upon referring to his manuscript journal for 1888, I find that No. 3 of his list, José,

son of José da Costa Vierra, was vaccinated February 12, 1886; No. 4, Paschaol Ruffino, on the 6th of February, 1886; No. 5, Henri Constance, on the 1st of January, 1886; No. 6, Fernando Argentineiro, on the 20th of February, 1886; and No. 7, Antonio Saraiva, on the 12th of February, 1886. The same manuscript record for 1886 shows that during these two months—January and February, 1886—the total number vaccinated by Dr. Freire was 460. That is to say, the mortality among those vaccinated during these two epidemic months was more than 1 per cent. On referring to the mortality lists of the city for the same two months, I find the total number of deaths to have been 369, which, in a total susceptible population of 160,000 (Dr. Freire's estimate), would give a mortality of 1 in 436." That is, the mortality among those vaccinated during those two months of epidemic prevalence of yellow fever was very much greater than among the non-vaccinated portion of the population.

Finally, I would say to Dr. Gaston, and to any others who still have confidence in Dr. Freire's protective inoculations, that I still have in my laboratory a pure culture of the micrococcus which he gave me as his *cryptococcus xanthogenicus*, at the time of my visit to Brazil, and that it is at the service of any reputable physician who may wish to test Dr. Freire's method of prophylaxis. Or, if there is any doubt as to this being the microorganism used by him in his inoculations, I would suggest to Dr. Gaston that he ask his friend Freire to send him a culture of the microorganism which he is now using in his inoculations, and that it be submitted to a competent bacteriologist for comparison with my cultures and for an experimental test of its pathogenic power.

The fact repeatedly asserted by me, and verified by the researches of Gibier, and of several competent bacteriologists in Cuba and elsewhere, that Freire's micrococcus is not found in the blood and tissues of yellow fever cadavers (as asserted by Freire), seems to have no weight with Dr. Gaston. This fact can be easily ascertained by any competent microscopist who may be disposed to go to Havana for the purpose of making personal investigations. As to the "sharp practices," and the effort to "forestall and checkmate the legitimate outgrowth of the facts presented by Dr. Domingos Freire," to which Dr. Gaston refers, I have no knowledge. The results of my personal investigations have been given in full in my published reports, and I must leave the profession to judge of the value of these investigations as compared with Dr. Freire's statistical figures.

Very truly yours,

GEO. M. STERNBERG,
Deputy Surgeon-General U. S. A.

ARMY BUILDING, NEW YORK.

THE GROSS MONUMENT FUND.

To the Editor of THE MEDICAL NEWS,

SIR: The article in THE MEDICAL NEWS of March 11, p. 276, relative to the state of the fund which is being raised to erect a monument as a memorial of the late Professor Samuel D. Gross, is misleading, and might prove embarrassing to the committee charged with the duty of making collections for the prosecution of the work.

The proposition to erect a monument to the memory of Professor Gross originated in the American Surgical Association, and was presented in the annual address of the President, Dr. C. H. Mastin, of Mobile, September 22, 1891. The president of the Association was authorized to appoint "a committee with authority to confer with the friends and admirers of the late Professor Samuel D. Gross and *with the profession at large*, for the initiation of a movement on the part of the Association having for its object the erection of a monument to Dr. Gross in the city of Washington, D. C."

Dr. J. R. Weist, of Richmond, Ind., was made chairman of the committee; Dr. C. H. Mastin, of Mobile, secretary, and Dr. John B. Roberts, of Philadelphia, treasurer.

In July, 1892, the Alumni Association of the Jefferson Medical College voted to appoint a committee to raise money to promote the object proposed by the American Surgical Association.

The estimated cost of the monument is \$12,000. Dr. Weist writes me of date the 11th inst.:

We have subscribed to the fund (all supposed to be good)	\$4,100.
Cash on hand	493
	<hr/>
	\$4,593
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As treasurer of the Alumni Committee I have in cash \$910.75
Subscribed (considered good). 200.00

Total subscribed and collected \$1,110.75
There remains to be collected the sum of . \$6,396.25

The committee has the assurance of further contributions amounting to \$4000 which they are not at present authorized to make public. There will still remain to be collected the sum of \$2396.25, all of which, it is believed, can be raised if the American Surgical Association will reconsider its action relative to the location of the monument in the city of Washington, and assent that it may be erected in Fairmount Park. The Committee of the Alumni Association has done no more than to present the subject of exchange of location to the American Surgical Association Committee, and has received favorable individual expressions. The subject will be presented at the next meeting of the Association. If we can offer further encouragement from the action and sentiment of our community in the nature of a guaranty that the whole sum remaining to be raised will be furnished, we have assurances that the change of location will be approved.

Respectfully yours,

JOHN B. CHAPIN, M.D.

PENNSYLVANIA HOSPITAL FOR THE INSANE,
PHILADELPHIA, March 30, 1893.

[The foregoing letter was written in response to our invitation, in order to make clear the condition of the fund. The information in THE NEWS of March 11, as stated by Dr. Chapin, seems to have been misleading.—[ED. NEWS.]

NEPHRITIS WITHOUT ALBUMINURIA.

To the Editor of THE MEDICAL NEWS,

SIR: I beg to state that I am investigating as to the frequency of kidney degeneration without albuminuria—a condition which I am inclined to believe not uncommon. I would esteem it a very great favor indeed if any physician would communicate with me who has one or more cases in which the symptoms suggest Bright's disease, such as changes in the fundus oculi, more or less persistent headache, vertigo, alteration in the normal amount and specific gravity of the urine, and other symptoms which may be referred to renal inadequacy, yet in which cases the absence of albumin from the urine and the failure to detect casts has led to the exclusion of Bright's disease.

Very respectfully yours,

D. D. STEWART, M.D.

2600 NORTH FIFTH STREET, PHILADELPHIA.

NEWS ITEMS.

Preliminary Program of the Section of Neurology and Medical Jurisprudence, American Medical Association, to be held at Milwaukee, Wis., June 6, 7, 8, and 9, 1893. Officers of the section: Charles K. Mills, M.D., 1909 Chestnut Street, Philadelphia, Pa., chairman; James G. Kiernan, M.D., 834 Opera House Block, Chicago, Ill., secretary.

Dr. William Osler, "Anorexia Nervosa;" Dr. Irving C. Rosse, "Evidences of Paranoia Gleaned from the United States Patent Office;" Dr. Harold N. Moyer, "Acromegaly;" Dr. Henry H. Donaldson, "On the Weight of the Brain;" Dr. Harriet C. B. Alexander, "Paretic Dementia in Women;" Dr. Daniel R. Brower, "Suggestions on the Treatment of Sclerosis of the Spinal Cord;" Dr. Archibald Church, "I. Occupation Neuroses Affecting the Muscles of the Neck, II. Syringomyelia;" Dr. James G. Kiernan, "Malpractice in Insane Hospitals;" Dr. L. Harrison Mettler, "I. Hemiparaplegia, Report of a Case Completely Recovered After One Year's Duration, II. Aural Vertigo (Ménière's Disease);" Dr. E. S. Talbot, "Race Degeneracy and the Jaws;" Dr. G. F. Lydston, "Remarks on the Therapeutical Use of Static Electricity;" Dr. T. H. McBride, "Thoughts on the Causation of Insanity;" Dr. James J. Putnam, "Recent Discoveries and Observations Bearing on the Subject of Poisoning from Exposure to Arsenical Wall-Papers;" Dr. Thomas D. Crothers, "American Inebriate Asylums;" Dr. E. D. Fisher, "Transverse Myelitis;" Dr. Landon Carter Gray, "What Should Constitute Legal Responsibility, in the Medical Sense, in Insanity;" Dr. Graeme M. Hammond, "On the Proper Method of Determining Whether an Alleged Lunatic Shall be Declared Legally Insane or Not;" Dr. Frederick Peterson, "Care of Epileptics;" Dr. Bernard Sachs, "Syphilis of the Cord Simulating Tabes;" Dr. Thomas G. Morton, "Some Medico-Legal Experiences in Railway Cases;" Dr. Wharton Sinkler, "Some Points in the Weir Mitchell Rest Treatment;" Dr. James Hendrie Lloyd, "A Study of the Gliomatous Process in the Spinal Cord—illustrated by Microscopical Sections;" Dr. Francis X. Dercum, "Symptomatology of Cerebellar Tumor;" Dr. Charles A. Oliver, "A Study of the Ocular Symptoms in

Friedreich's Disease;" Dr. Hobart A. Hare, "Has the So-called Suspension Treatment of Diseases of the Spinal Cord Proved an Addition to Our Therapeutics;" Dr. J. Madison Taylor, "I. Notes on the Treatment of Exophthalmic Goitre. II. Insanity in Childhood;" Dr. Charles W. Burr, "A Contribution to the Study of Friedreich's Ataxia;" Dr. D. D. Stewart, "The Diagnosis of Lead Convulsions;" Dr. John B. Deaver, "A Consideration of the Different Trigeminal Operations for the Relief of Pain;" Dr. Henry Leffmann, "Experiences of a Chemist with Delusional Insanity;" Dr. Charles K. Mills and Dr. G. E. de Schweinitz, "Hemianopsia and Certain Symptom-groups in Sub-cortical Lesions;" Dr. Charles K. Mills, "Paranoia in Some of its Medico-legal Aspects;" Dr. Isaac N. Kerlin, "Early Recognition and Rational Treatment of Moral Imbecility;" Dr. Theodore Diller, "A Case of Sub-cortical Cyst of the Lower Part of the Ascending Parietal Convolution—Operation, Recovery;" Dr. Frank T. Norbury, "Insanity of the Aged;" Dr. Annette McFarland, "Gynecology in the Insane;" Dr. C. H. Hughes, "Dyspepsia as a Nervous Disease, or Indigestion in its Nervous Aspects and Relations;" Dr. J. T. Eskridge, "Case of Syphilis of the Pia, Simulating Tumor of the Brain, Mono-spasm and Mono-paresis—Operation, Death on the Third Day;" Dr. H. A. Tomlinson, "The Inadequacy of the Morbid Anatomical Changes Found Post-mortem to Explain the Manifestations of Insanity;" Dr. R. M. Phelps, "Degrees of Responsibility as Found in the Insane;" Dr. C. B. Burr, "Surgery in the Insane;" Dr. T. L. Wright, "The Special Influence of Alcohol on the Body."

Preliminary Program of the American Academy of Medicine Meeting, June 3 and 5, 1893, at Milwaukee.—Report of Committee on the Requirements for Preliminary Education in the various Medical Colleges in the United States and Canada. Report of Committee on the Comparative Value of Academical Degrees. "The Attitude of Our Medical Schools in Relation to Preliminary Studies," R. Lowry Sibbet, Carlisle, Pa. "What Mental Faculties Should be Specially Trained for the Study of Medicine?" James W. Moore, Lafayette College. "The Classics and the Common Schools," J. Berrien Lindsley, Nashville, Tenn. President's Address. "What Should be Required in an Entrance Examination to a Medical School?" James W. Holland, Jefferson Medical School. "Should There be Elective Studies in a Medical Course?" P. S. Conner, Medical Department, Dartmouth College. "On the Endowment of Medical Schools," George M. Gould, Philadelphia. Report of the Committee on the Laws Regulating the Practice of Medicine. "The Duty of the State to Medicine," Benjamin Lee, Philadelphia. "The Importance of the Study of Medical Sociology," Charles McIntire, Easton, Pa. Title to be announced later—C. C. Bombaugh, Baltimore.

American Medical Editors' Association.—The Eleventh Annual Meeting of the Association is to be held in Milwaukee, Wis., June 5, 1893. Dr. Ernest Hart, editor of the *British Medical Journal*, will deliver the annual address. This will be followed by other addresses and discussions which promise to be of unusual interest to every editor and medical journal in the country.

Dr. Theodore Diller has been appointed visiting physician to the insane department of St. Francis's Hospital, Pittsburg.

BOOKS AND PAMPHLETS RECEIVED.

Cases of Symmetrically-placed Opacities of the Cornea, Occurring in Mother and Son. By Charles A. Oliver, M.D. Reprint. Ophthalmometry in the United States, and its Championship. By A. E. Davis, M.D. Reprint, 1893.

Supra-vaginal Hysterectomy without Ligature of the Cervix, in Operation for Uterine Fibroids; a New Method. Cases of Chronic Ovarian Abscess Illustrating the Danger of Delay in their Proper Management. Drainage in Abdominal Surgery: its Unnecessary and Excessive Use. By B. F. Baer, M.D. Reprint, 1893.

The Retention of Binocular Vision with Two Glasses of Different Strengths. By Arthur D. Mansfield, M.D. Reprint, 1893. Proceedings of the Philadelphia County Medical Society. Vol. XIII. Session of 1892. Lewis H. Adler, Jr., M.D., Editor. Philadelphia: Published by the Society, 1892.

Transactions of the American Ophthalmological Society. Twenty-eighth Annual Meeting. Hartford: Published by the Society, 1892.

Saint Bartholomew's Hospital Reports. Edited by W. S. Church, M.D., and W. J. Walsam, F.R.C.S. Vol. XXVIII. London: Smith, Elder & Co., 1892.

A Case of Hysterical Astasia-abasia Suing for Damages. By L. Bremer, M.D. Reprint, 1893.

Itching of Central Origin, or Brain Itch. By L. Bremer, M.D. Reprint, 1892.

Akromegaly. By Joseph Collins, M.D. Reprint, 1893.

Contributions from the Surgical Service of St. Mary's Hospital for Children. By Charles T. Poore, A.M., M.D. Reprint, 1892.

Fracture of the Skull from the Discharge of a Shotgun into the Left Orbit. By Wyatt Johnston, M.D. Reprint, 1893.

Is Evolution Trying to Do Away with the Clitoris? By Robert T. Morris, A.M., M.D. Reprint, 1892.

Die Zersetzung animalischer Materie, nebst Anhang: Heilkunst und Heilwissenschaft. Von Dr. Heinrich Stern. Zweite Auflage. Milwaukee, Wis.: Freidenker Publishing Co., 1892.

Clinical Reports on Insanity. By the Medical Staff of the Maryland Hospital for the Insane. Baltimore, Md.: James Young, 1892.

Fourth Annual Report of the Health Department of the City of Mansfield, Ohio. By R. Harvey Reed, M.D. 1892.

Resection of the Optic Nerve. By Dr. Rohnur. Translated by L. Webster Fox, M.D. Reprint, 1893.

Insanity in Early Childhood. By Wharton Sinkler, M.D. Reprint, 1893.

An Outline of the Technique of Abdominal and Pelvic Operations, as Performed in the Medico-Chirurgical Hospital of Philadelphia. By William Easterly Ashton, M.D. Reprint, 1893.

The Year-Book of Treatment for 1893. Philadelphia: Lea Brothers & Co., 1893.

Reflex Amblyopia. By J. Walter Park, M.D. Reprint, 1893.

Diseases of the Skin. By Charles C. Ransom, M.D. Philadelphia: Lea Brothers & Co., 1893.

A Consideration of Some Modern Therapeutic Agents in the Treatment of Diseases of the Stomach. By David D. Stewart, M.D. Reprint, 1893.

Treasury Department. United States Quarantine Laws and Regulations. Washington: Government Printing Office, 1893.

The Annual Report of the Health of the Imperial Navy for the Year of Meiji (1891). Tokyo.

Fixation after Excision of the Knee. By H. Augustus Wilson, M.D. Reprint, 1893.

Thermotaxis in Birds. By Isaac Ott, M.D. Reprint, 1893.

Annual Reports of the Managers and Officers of the State Asylums for the Insane, for the Year ending October 31, 1892. Trenton, N. J.: The John L. Murray Publishing Co., 1892.